DECEMBER 14, 1959

PAPER TRADE JOURNAL

French Mill Installs Europe's First Chemi-Groundwood Mill

Potlatch Makes Kraft Pulp from Sawdust and Wood Waste

BEGINNING A VALUABLE NEW SERIES ON MAINTENANCE with How to Gain Longer Life from Your Conveyor Belts

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Paper sculpture by Giuseppe Baggi

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Bleached, Semi-Bleached, and Unbleached Kraft

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Citric Acid -- Dowell's New Service for Cleaning Stainless Steel Process Equipment

Now, for the first time, plant operators can be sure of a new degree of safety in the cleaning of their pressure units containing austenitic stainless steel—for example, heat exchangers, stainless-clad pressure vessels, atomic reactors, and supercritical-pressure steam generators. Citric Acid service by Dowell provides a new, effective method for these special chemical cleaning situations.

The Citric Acid used in Dowell chemical cleaning is inhibited with an *exclusive chloride-free* inhibitor. Cleaning with this new field-proven solution assures a chloride-free solvent system, and thus helps prevent chloride stress-corrosion cracking.

Dowell Citric Acid also provides other significant advantages: Citric Acid stabilizes dissolved iron and helps prevent precipitation of insoluble iron compounds when neutralizing chemicals are used. Flushing of the unit is not as difficult when Citric Acid is used. Citric Acid is especially suitable where stainless steel and other metals are used together in construction of the unit.

Citric Acid cleaning with a chloride-free inhibitor is just one of the new ideas from Dowell research. Other recent contributions include the new "white glove" standards of cleanness, copper removal agents and the new jetting device for cleaning heat exchanger tube bundles.

Ask your Dowell representative about Citric Acid service and Dowell chemical cleaning programs for your plant equipment. Dowell, the leader in chemical cleaning service and research, operates in every major industrial area through 165 offices and stations. Dowell, Tulsa 1, Oklahoma.

Chemical cleaning service for all industry

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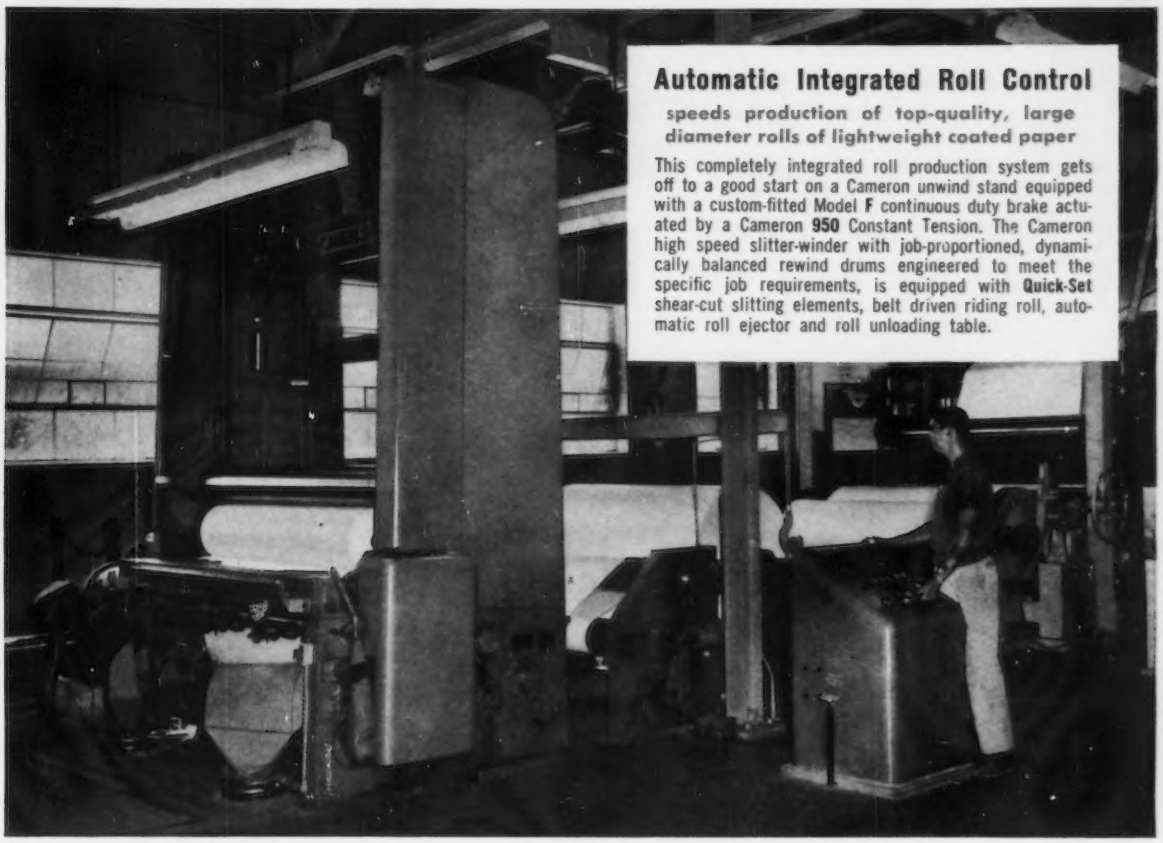

Automatic Integrated Roll Control

speeds production of top-quality, large diameter rolls of lightweight coated paper

This completely integrated roll production system gets off to a good start on a Cameron unwind stand equipped with a custom-fitted Model **F** continuous duty brake actuated by a Cameron **950** Constant Tension. The Cameron high speed slitter-winder with job-proportioned, dynamically balanced rewind drums engineered to meet the specific job requirements, is equipped with **Quick-Set** shear-cut slitting elements, belt driven riding roll, automatic roll ejector and roll unloading table.

Cameron Automatic Roll Control, perfectly integrated from unwind to finished rolls, assures top-quality slitting and rewinding at

5000 FPM ON LIGHTWEIGHT COATED PAPER

. . . staying well ahead of the new high speed coating operation at Crocker Burbank Company's Number 3 Mill, Fitchburg, Massachusetts.

New high speeds are multiplying the risks in fast new printing and converting operations. Printers and converters can no longer afford the cost of poor quality rolls, web breaks, damaged materials, or rolls that peter out too quickly on long runs. There is an increasing need for perfect, clean-cut, large diameter rolls of uniform density. That is why leading finishing room superintendents agree on this point – the modern, high speed, roll production system must be custom-engineered by specialists to provide automatic, integrated roll control from unwind to finished rolls.

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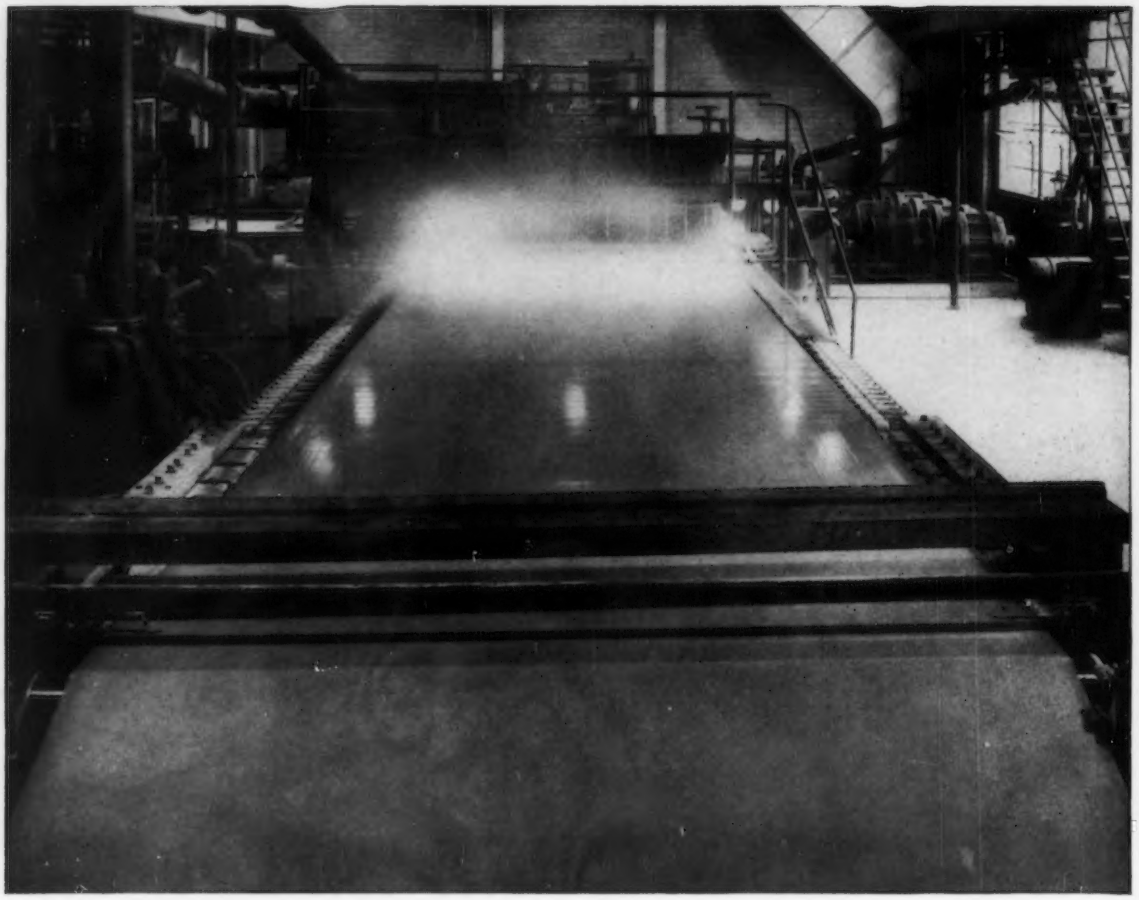
AA-370

53 years devoted exclusively to the design and manufacture of slitting, roll winding, unwind and web control equipment.



A Complete Starch Line... *tailor-made to your needs*

Today's complex papermaking operations require a wide range of starches—starches specifically designed to do a particular job. You'll find that the complete starch line offered by Corn Products Company includes types for every phase of modern papermaking. These starches are available in so many varieties that *they can literally be tailor-made to suit individual requirements* and production problems of individual plants!

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*A reprint on the results of corn starch usage is available on request from our New York office.

PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

January 21. Western Michigan University Fourth Annual Pulp and Paper Conference, Kalamazoo, Mich.

January 25-28. Plant Maintenance and Engineering Show, Convention Hall, Philadelphia, Pa.

January 26-29. Technical Section, Canadian Pulp and Paper Asa'n., Queen Elizabeth Hotel, Montreal. Note meeting starts Tuesday.

February 22-25. Paper Week in New York.

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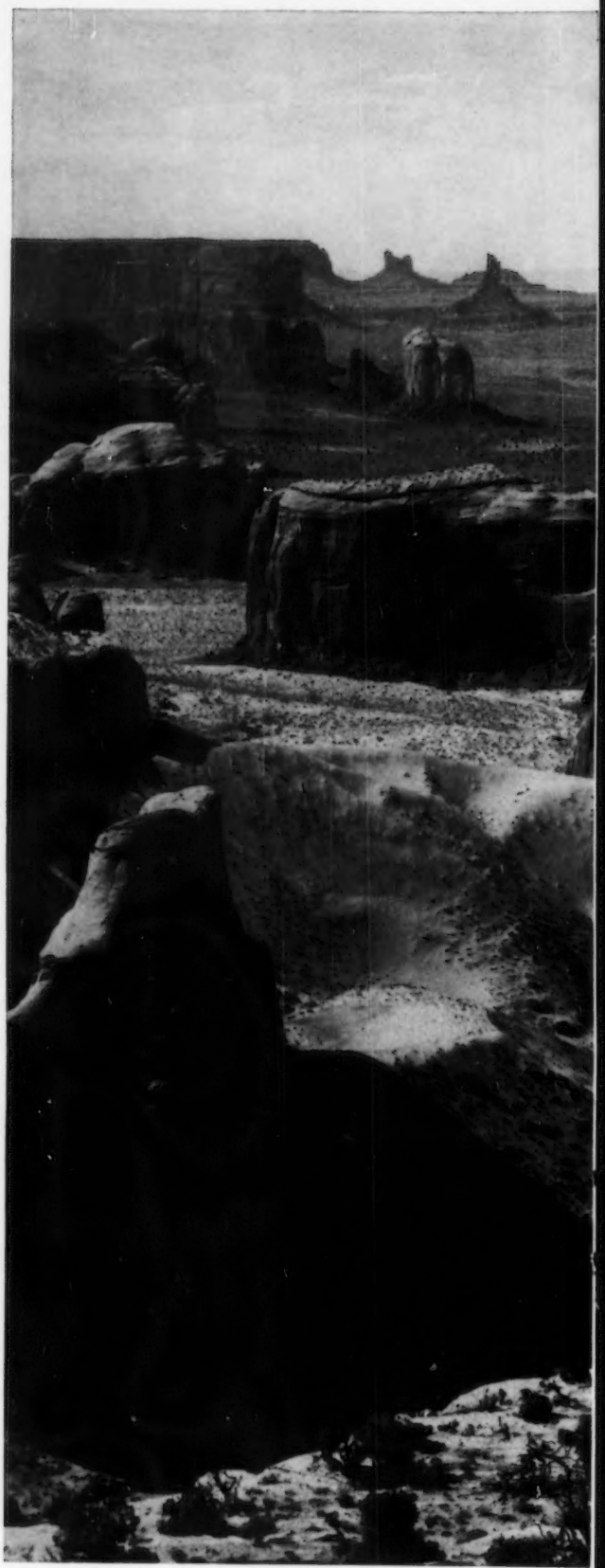
Hills and valleys may be beautiful... but not for paper coaters



A paper coater might enjoy this view when he is on vacation, but "hills and valleys" are the last things in the world he wants in the paper he has coated. Perfect smoothness is his aim, and competitive tests indicate he has a better chance of getting it with DYLEX® K-54 latex.

DYLEX K-54 is a new Koppers latex for the paper coating industry. In Gurley Smoothness Tests on identical paper coated with a DYLEX K-54 formulation and competitive latices, the paper coated with DYLEX K-54 had substantially higher ratings at all adhesive levels. Both starch and casein were used in the tests.

In addition to superior smoothness, DYLEX K-54 offers higher pick resistance, excellent mechanical stability and less foam. For more information on formulating better clay coatings with DYLEX K-54, write for our free booklet. Koppers Company, Inc., Plastics Division, Dept. PT-129, Pittsburgh 19, Pa.

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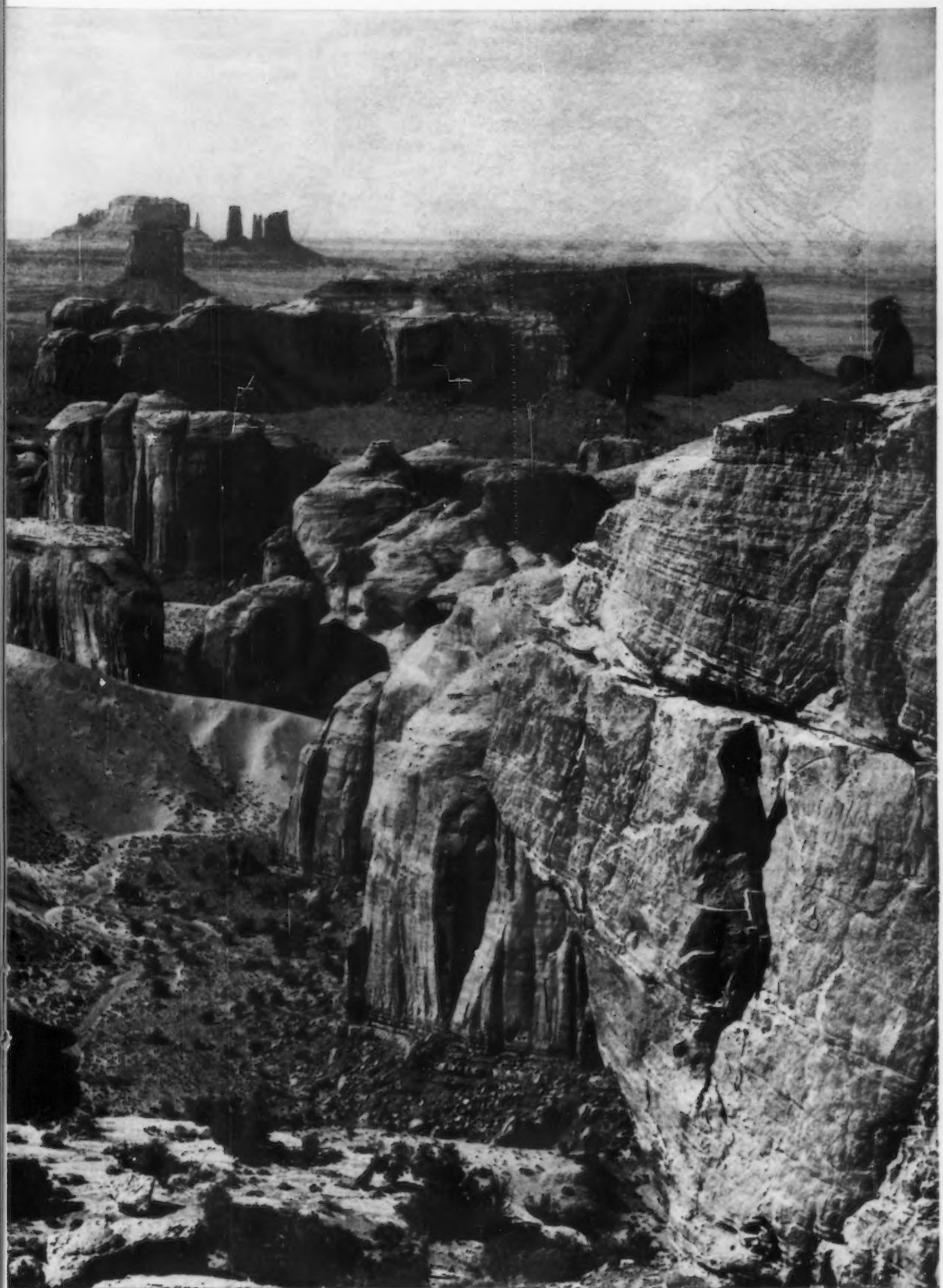
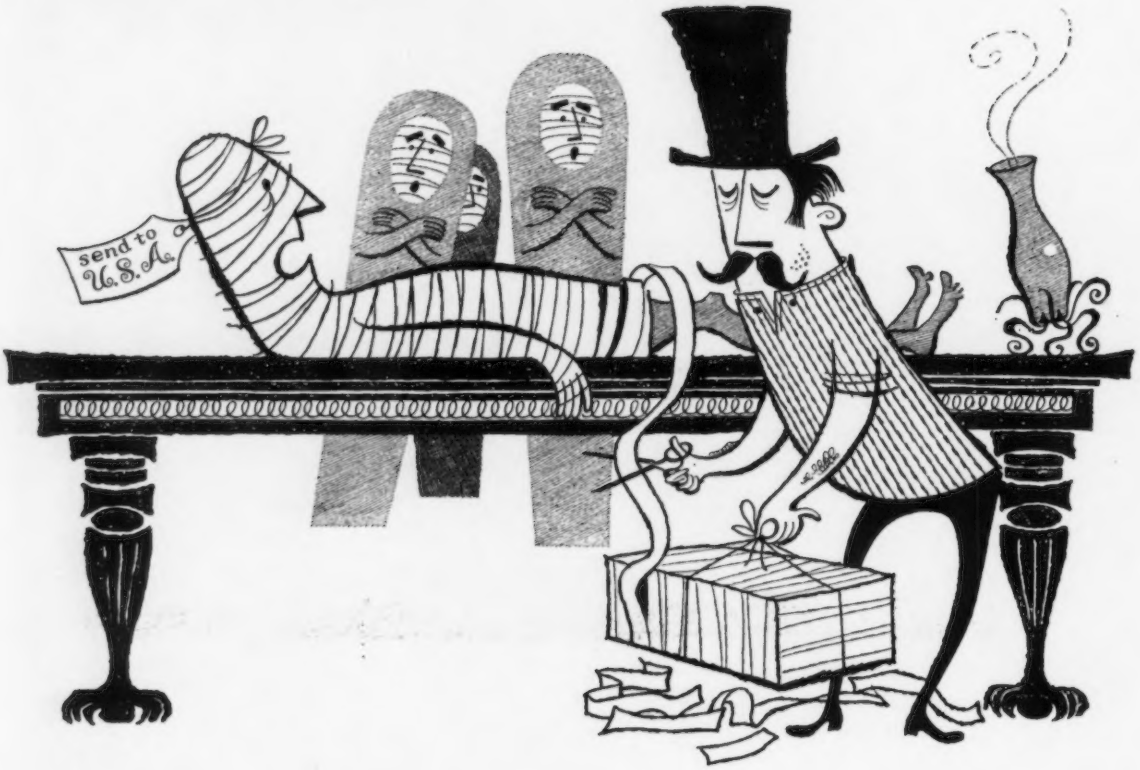


Tales of the Paper Industry: No. 3



The Egyptian mummies that wound up as wrapping paper

I. Augustus Stanwood was a character! He was also a man who liked to make money. During the Civil War, Stanwood was hard-pressed for raw material to keep his Maine paper mill operating. So, he imported Egyptian mummies and converted their shrouds into paper. But, the mummies brought something else with them, too; an epidemic of cholera!

It's interesting to note that the only objection raised to Stanwood's venture came from the Egyptian railroad. For during that period, the railroad was using the mummies for something else. FUEL! The moral of the story: *solving a problem the wrong way is sometimes unhealthy*.

If you have the problem of buying pipe or tubing for paper mill applications, National Tube would like to help you make the decision. Our trained Mill Service Force will gladly make a careful study of your requirements, and then recommend the best, most economical pipe for the job. These men are available for field consultation. And their advice won't cost you a thing.

National Tube manufactures seamless pipe and tubes in a complete range of steel analyses from low carbon through the alloys up to and including stainless steel. A wide variety of sizes and wall thicknesses is available for every mechanical and pressure requirement. Plan now to contact National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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TWO BULLETINS FROM HOOKER ON COLD SODA PULPING

Special Considerations toward Improvement of Cold Soda Pulping Process. This recent paper gives results from experimental and practical work with southern red oak, white oak, soft maple, elm, ash, and yellow birch pulps.

The work was directed toward ways to improve the quality of paper and boards made from these various hardwoods. Charts and tables summarize data on such liquor absorption factors as pressure, vacuum, particle size, moisture content, surfactants, and presteaming.

This bulletin is a reprint of a paper prepared by Kenton J. Brown, chemical engineer of the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture. Circle 252 on the coupon for a copy.

Cold Soda Pulping of Aspen by Improved Methods describes the results of work done under Hooker sponsorship at the Forest Products Laboratories. It describes a practical process for developing corrugating board and news-type papers from cold steeped aspen pulp. The resulting board shows higher strength properties than four other boards made from commercial neutral sulfite semi-chemical pulp. The paper showed itself suitable in every way for magazine-type book papers. The bulletin discusses the process and its results in detail. Circle 250 on the coupon for a copy.

NEW BULLETIN ON BLEACHING KRAFT PULPS

Three-Stage Bleaching of Kraft Pulps to High Brightness describes a new process for bleaching kraft pulp to 85 to 87 brightness with excellent strength retention and moderate color reversion. The process involves the inclusion of a small amount of chlorine dioxide in the chlorination stage and hypochlorite with the caustic soda in the extraction stage. The process requires minimum capital investment. For a copy of this paper, circle 223 on the coupon.

Bulletins like these are made available by Hooker as part of a continuing effort to be of service and to keep you abreast of important developments in pulp and paper technology.

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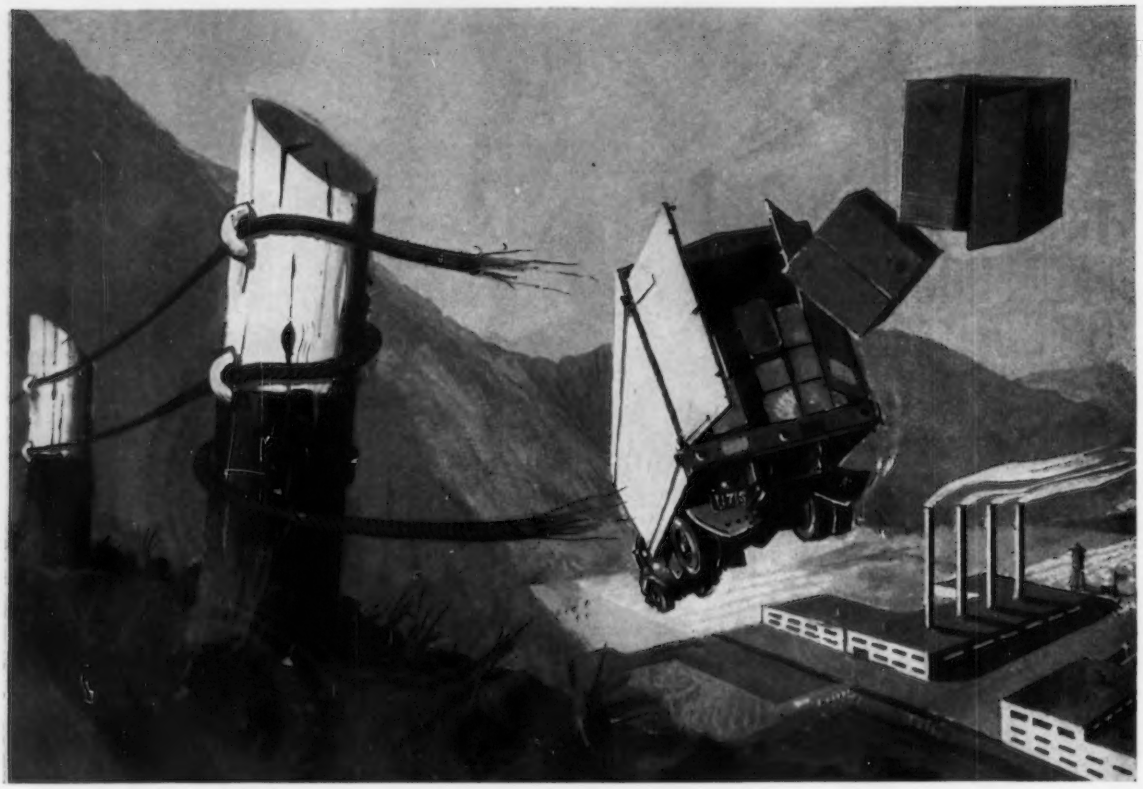

HOW A HIGHWAY ACCIDENT CLEANED A STOCK PREPARATION SYSTEM!

Skidding across the highway, a giant trailer truck crashed through the guard rail of a New England turnpike, spilling thousands of gallons of LESTOIL Liquid Detergent down the mountainside. The driver escaped with only minor cuts and bruises, but the LESTOIL found its way into the water supply of a nearby paper mill.

Unknown to the mill production staff, the LESTOIL "solution" flowed through intake pipes, and thence through the entire stock preparation system.

THE RESULT: scale, slime, mineral salts and dirt which had accumulated in the pipes — emulsified by the LESTOIL — flowed out of the head boxes onto the paper machine. This unscheduled cleaning naturally curtailed production, but the plant superintendent was really impressed with the thorough cleaning job done by LESTOIL.

We don't recommend such drastic treatment to test d-i LESTOIL (our special paper mill formula). But, used periodically as a system cleaner, d-i LESTOIL does the job quickly and efficiently. And used regularly in your pulping or rag cooking processes, d-i LESTOIL will not only de-ink, de-wax and de-grease your raw stock, but will also prevent soil deposits from forming in your system and help you maintain top production.

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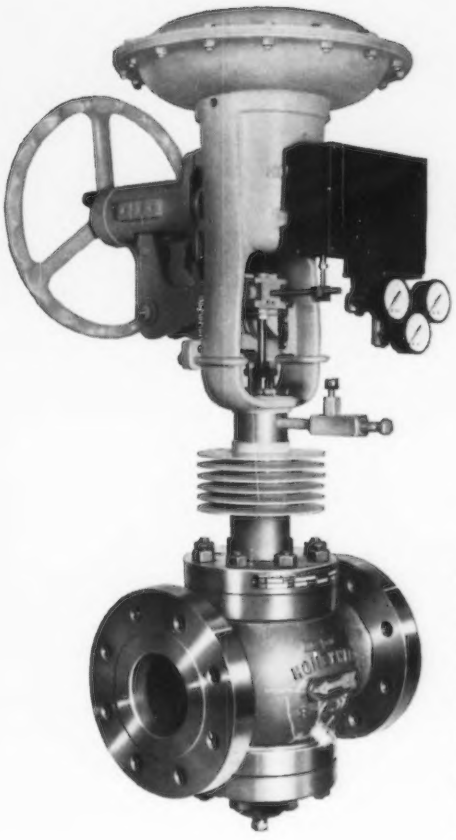
is your PROCESS FLOW HOT?



Honeywell control valves are available for a wide range of temperatures

Whether you're talking about 1200 or minus 450° F, there's a Honeywell automatic control valve for your process flow. The Honeywell valve illustrated—Series 800, Type 11 double seated—is designed to handle fluids at 1200° F. This application requires such features as: welded-in, solid stellite guide bushings . . . stellited guide posts . . . seal-welded seat rings . . . spiral wound, asbestos-filled, stainless steel gaskets . . . high-temperature bolting . . . extended bonnet with fins . . . designed clearances for non-sticking, non-galling operation.

For hot or cold flows . . . or other process flow conditions . . . Honeywell valves are available in a wide range of types and sizes. When you need control valves . . . contact your local Honeywell field engineer. Write for new Catalog C800-1.

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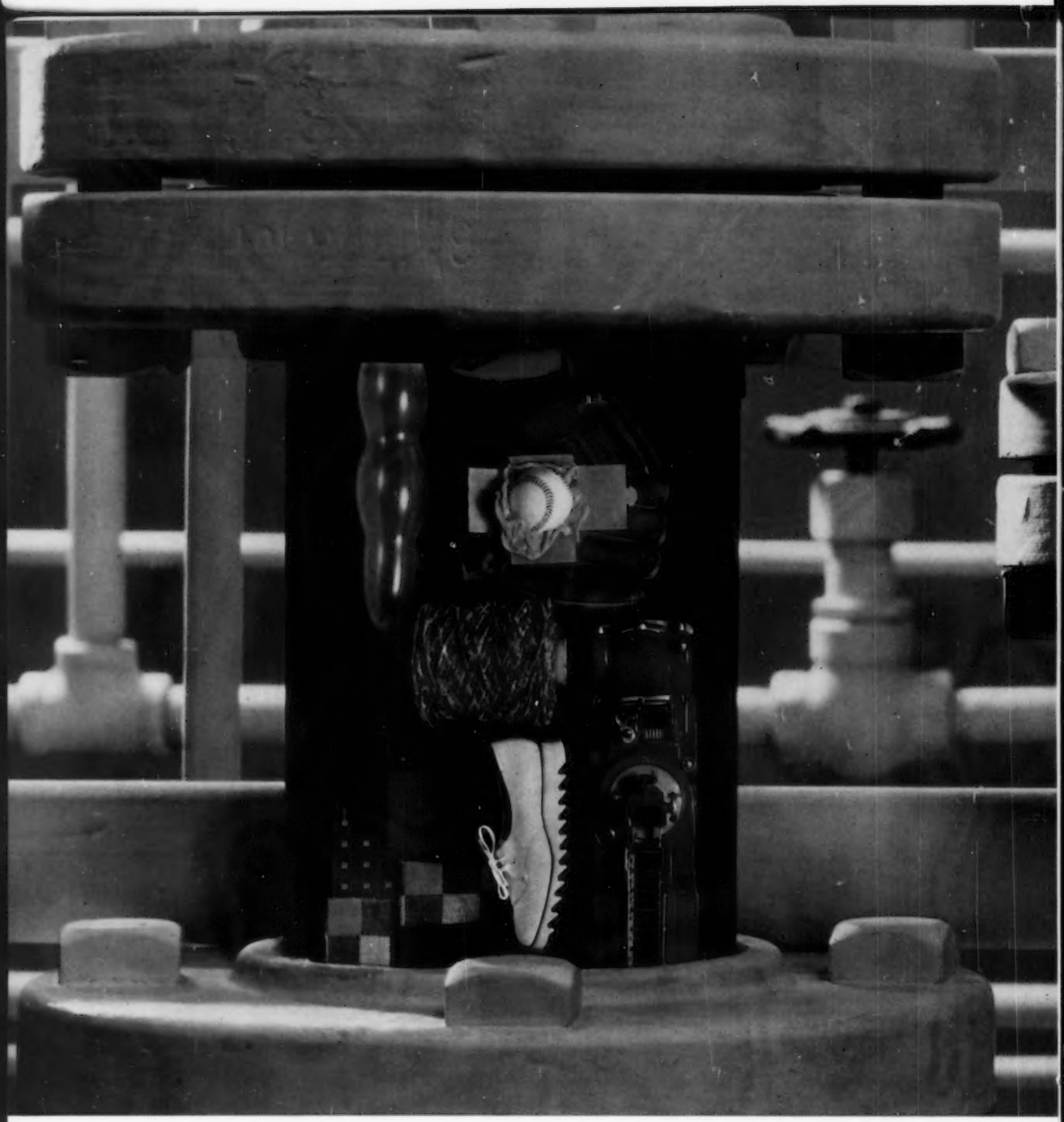

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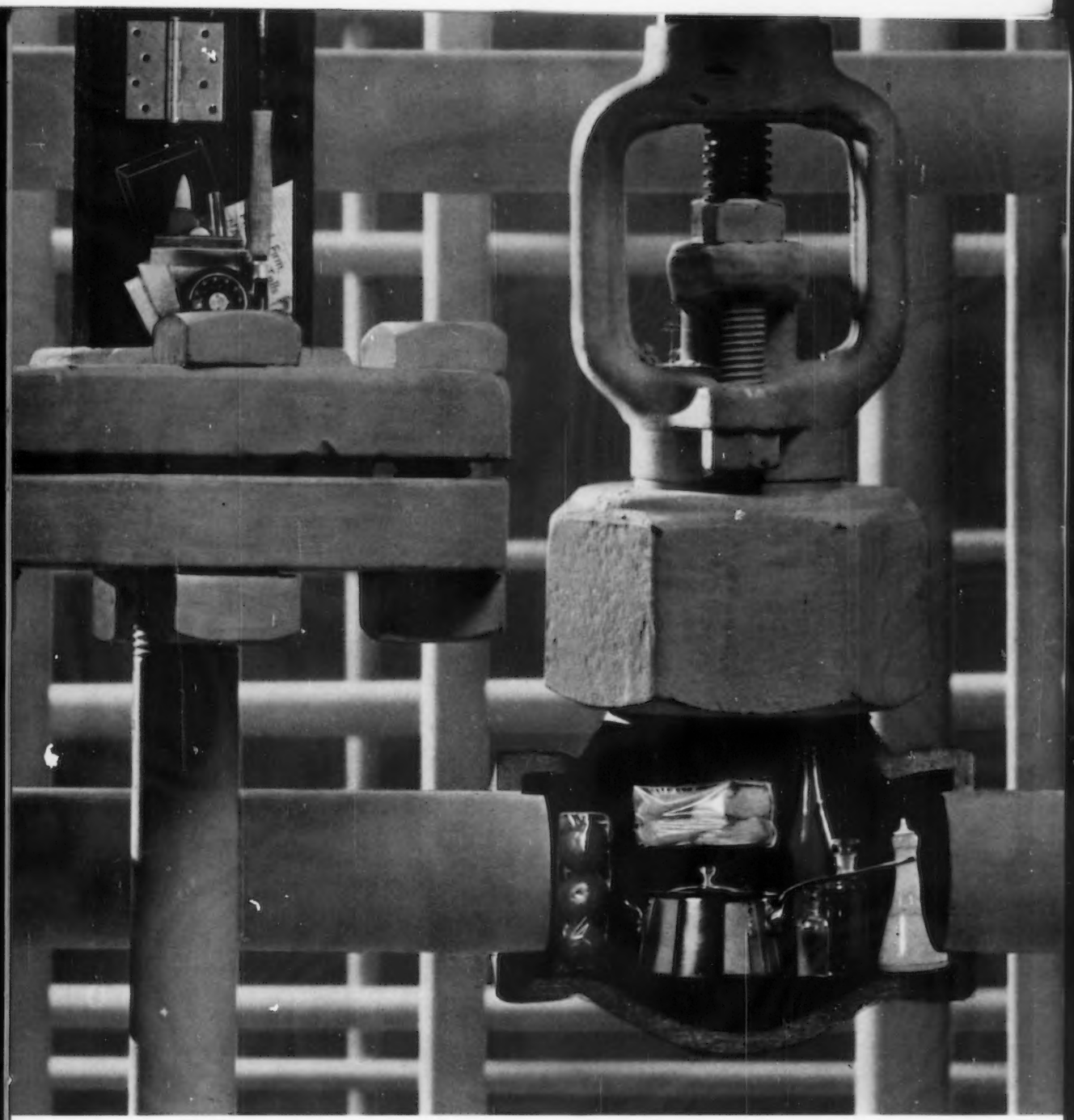
YOU'LL LIKE DOING BUSINESS WITH
COLUMBIA-SOUTHERN



You can count on smooth production when you use Columbia-Southern chemicals, because they'll be delivered to you on time, in the grades and quantities ordered. You'll find the quality consistently high, too.

But you get far more than prompt delivery and consistent quality when you work with Columbia-Southern. You can call on Columbia-Southern's solid experience in chlorine, alkalies, and related chemicals to help you improve the efficiency of your processing activities. Your Columbia-Southern Representative will give you sound, profit-building advice on such vital matters as forms and grades, transportation economics, storage methods, safety precautions, and applications.

Why not start with a general survey of your current purchases? Call in your local Columbia-Southern Representative and let him work with you in evaluating every step. You'll be glad you did.

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Which of these 3 products and services can you use from BECCO?

B&W Two-Drum Stirling Boiler for Union Bag-Camp Paper Corporation will burn unhogged bark, natural gas, and oil to generate steam for power and process requirements of Savannah, Georgia, Mill.

Why America's Largest Bark-Burning Boiler is a B&W Boiler

The highest rated bark-burning boiler ever built will soon be generating 550,000 pounds of steam per hour at Union Bag-Camp Paper Corporation's huge mill at Savannah, Georgia. It will burn unhogged bark as a primary fuel but can also be fired with natural gas or oil—singly or in combination with the other fuels. The unit has a design pressure of 1250 psi at the superheater outlet and will operate at 950 F.

The designer and manufacturer? Babcock & Wilcox. Long associated with burning all kinds of fuel for steam generation, B&W has proved time and again its ability to supply dependable and efficient boilers of every size to burn every conceivable kind of fuel. And B&W's manufacturing capacity and know-how assure quick and dependable delivery schedules. That's why profit-minded steam users everywhere choose B&W to solve their fuel burning and steam generating problems.

If you're looking for ways to increase boiler efficiency and achieve fuel economies that will increase your profits, your first step is a talk with B&W. Contact your local B&W sales engineer or write The Babcock & Wilcox Company, Boiler Division, Barberton, Ohio.

P-822

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Calcium Chlorite • Metallic Acids • Calcium Hypochlorite • Hydrogen Peroxides • Alkaline Peroxides

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New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*—Patent Pending

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No. 32 — H_2O_2 Bleaching of Chemicals and Mechanical Pulps.

No. 47 — Peroxide Bleaching of Pulps.

No. 48 — High-Density Pulp Bleaching.

No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 — Peroxide Bleaching of Southern Pulps.

No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 — Peroxide Bleaching of Chemical Pulps.

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1. Comprehensive survey of your facilities.
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Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

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TITANOX® helps her find her brand

Such identification is made easier by sharpening the contrast and legibility of the wrapper through white pigmentation. And the best effects are always achieved by the remarkable whitening, brightening and opacifying power of TITANOX white titanium dioxide pigments.

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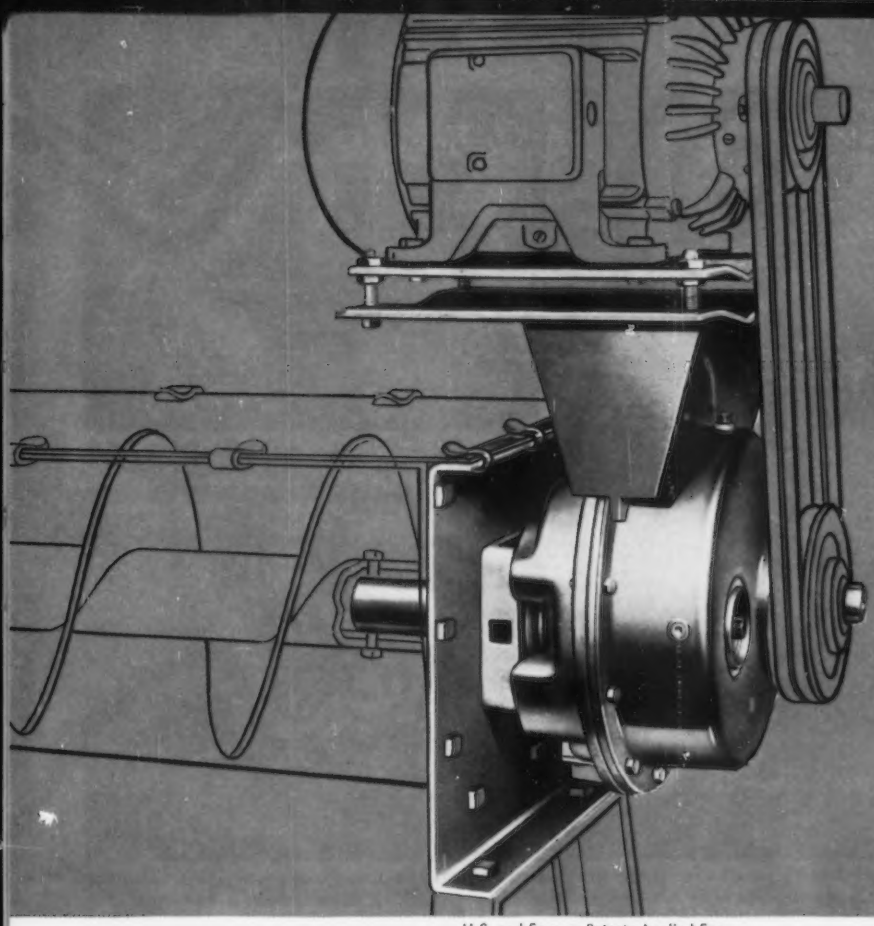

NEW! FALK Screw Conveyor Drive

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—the drive our customers asked for

Our customers helped us design this new unit. We sent our men into the field to find out what our customers needed in a screw conveyor drive—then our engineers designed a new drive that offers the maximum of service, versatility, operating economy and long life. Here are some of its outstanding features:

A COMPLETE DRIVE: Saves engineering and assembly time. Six sizes to cover entire range—each with these ratios: — 4:1, 9:1, 14:1 and 24:1. Bolts to any standard trough end—eliminates trough end bearing. Eliminates drive shaft wobble. Efficient FALK single helical gears.

SEAL HOUSINGS: Choice of seals (neoprene or leather lip, felt or waste) to accommodate material conveyed. Space between trough seal and unit seal prevents conveyed material from reaching unit seal.

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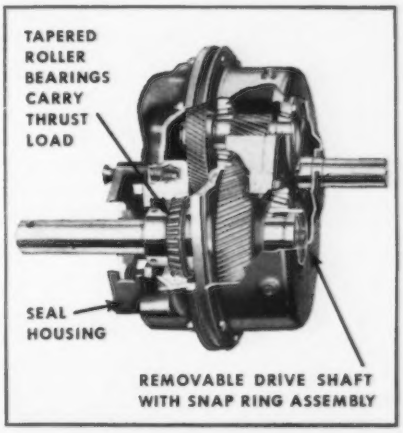
TROUGH END: Can be fastened to any standard trough. Eight sizes, from 6″ to 20″.

ALL-STEEL MOTOR MOUNT: Saves costly engineering and installation time and costs; no motor plates to design or fabricate. Motor can be mounted in virtually any position. Pre-drilled to accommodate NEMA standard motors ½ to 30 HP.

AN IMPORTANT ECONOMY: Buy only what you need—the basic reducer alone, or with trough end and/or motor mount. For detailed information, contact your Falk Representative or Distributor—or ***write direct for Bulletin 7106.***



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MANUFACTURERS OF QUALITY GEAR DRIVES AND FLEXIBLE SHAFT COUPLINGS

Representatives and Distributors in most principal cities

FALK

...a good name in industry

TWENTY-TON LOAD aboard trailer fails to bother multiwall sack made with CLUPAK kraft. Patented, built-in stretch absorbs shock as wheels pass completely over. Sack contains 100 pounds of abrasive sand-blasting grit, found difficult to package prior to use of CLUPAK paper multiwalls.

NAIL SHAKE-UP test shows how CLUPAK paper resists puncture. After two minutes, ordinary bag resembles porcupine, but only two nails have penetrated tough, flexible CLUPAK paper.

MAIL GOES THROUGH without complaints when the wrapper is CLUPAK kraft. Leading magazines find tough, flexible CLUPAK paper survives rough handling far better than ordinary kraft wrap.

NEW PAPER WITH REVOLUTIONARY *"TOUGHNESS"* MAKES PAPER VIRTUALLY A NEW MATERIAL

ABSORBS SHOCKS INSTEAD OF TEARING! CLUPAK Extensible Paper opens a new era in paper . . . its applications are unlimited. For CLUPAK paper has a built-in *stretch* or extensibility which lets it absorb the shocks and strains that cause ordinary paper to rip, tear and puncture. The result is a new dimension in paper—*toughness.* And the greater *flexibility* of CLUPAK paper is important where folding, bending, wrapping or filling is involved. Already CLUPAK paper is giving multiwall sacks, grocery bags, asphalt and decorative laminates, protective bags, polyethylene coated papers and many other products better performance, often at lower cost.

KEY FACTS FOR BUYERS: CLUPAK kraft is the same as ordinary kraft except that it is stronger, tougher and more flexible. It can be made in many basis weights, and with varying degrees of stretch. Printability, surface friction, porosity and other properties can be controlled as with ordinary paper. Clupak, Inc., does not make paper. It carries on continuous research and development work, and results are made available to all licensees, listed below. **Clupak, Inc., permits use of its trademark only on paper which meets this company's rigid toughness requirements.** Clupak, Inc., 530 Fifth Avenue, New York 36, N. Y.

BE SURE TO LOOK FOR THIS TRADEMARK

EXTENSIBLE **CLUPAK®** PAPER *

**Clupak, Inc.'s trademark for extensible paper manufactured under its authority.*

Buy CLUPAK paper and products made with CLUPAK paper from:

Albemarle Paper Mfg. Co.
Calcasieu Paper Co.
Canada Paper Co. (Canada)
Crown Zellerbach Corp.
Continental Can Company, Inc.
Dynas Aktieboiag (Sweden)
Hudson Pulp and Paper Corp.
International Paper Co.
St. Lawrence Corp., Ltd. (Canada)
St. Regis Paper Co.
Union Bag-Camp Paper Corp.
West Virginia Pulp and Paper Co.

SCAPA

GROUP "C"

SYNTHO-ASBESTOS Dryer Felts

incorporate our exclusive

* "3-DECKER" STRUCTURE

- Dacron-Nylon Working Face
- Syn-Reinforced Asbestos Center
- Syn-Reinforced Cotton Back

(Approx. 25% Synthetic Content)

They insure excellent drying, combined with unusually high resistance to thermal, chemical and mechanical degradation.

Types 3175-C (SRA) and 3480-C (SRA) supplied in all widths either open-ended or with Clipper Seam.

Type 3980-C (SRA) supplied endless with hand-spliced seam.

*World Patents Granted and Pending

Morey Paper Mill Supply Company
309 SOUTH STREET, FITCHBURG, MASSACHUSETTS

Sole U. S. Agents for

SCAPA DRYERS, INC.
WAYCROSS, GEORGIA

One in a series of interviews with the men who are "Virginia"

"Combination bleaching of mechanical pulp —following peroxide with a hydrosulfite— can give you brightness gains of 15 to 20 points"

Robert Barton, a technical representative for Virginia Smelting Company, discusses the advantages of 2-stage bleaching from the standpoint of costs and results.

Robert Barton, a "Virginia" technical representative

Q Why does 2-stage bleaching give more brightness gains?

A Because the action of peroxide and hydrosulfite on pulp is not the same. Each gains its effect in a different way, and while there is some overlap in their action, there is a very worth-while cumulative effect. In other words, where you can reasonably expect a brightness gain up to 12 points using either bleach alone, the two bleaches used consecutively jump the results to anywhere from 15 to 20 points.

Q What are the advantages of 2-stage bleaching?

A Lower costs and better results—especially if the mill is now using some agent other than hydrosulfite for its single-stage bleaching. The big financial advantage in switching to a combination bleach goes to the pulp mill now using a single stage of peroxide.

Q How does the 2-stage bleach cut costs?

A The principle is to use as little of the more expensive peroxide as possible. The first stage is a bleach with peroxide. Follow this with a hydrosulfite bleach and you have cut the heart out of bleaching costs, at the same time stepping up the quality of the final product. Higher brightness and lower costs are the main reasons why 2-stage bleaching is becoming increasingly popular.

Q Can this process be applied to any kind of pulp with the same results?

A No, the response varies slightly with the wood from which the pulp is made. Good results have been obtained with spruce, poplar and pine groundwood pulps and with a large number of semimechanical pulps made from many species of caustic or sulfite pretreated hardwoods. Mixtures of chemical and mechanical pulps also respond favorably.

Q How can pulp manufacturers find out whether or not the 2-stage bleach will be advantageous to them?

A Simply by calling on the services of "Virginia." We can bring our lab equipment right into a mill, make tests, and demonstrate the possibilities of 2-stage bleaching under practical operating conditions. We will lend the mill any necessary equipment, find a spot in the system where the hydrosulfite stage can be inserted, and help run a mill trial. If the 2-stage process proves desirable, we will stay on the job and help iron out any technical problems that might arise. Under circumstances like these a pulpmaker can easily see where costs are being cut—and examine the improved final product with his own eyes. This is the kind of technical service on which "Virginia" has built its reputation.

• • •

For more information on 2-stage bleaching with "Virginia" zinc or sodium hydrosulfite, write us giving any technical data that may help us evaluate your problem. We will forward technical literature and run laboratory tests provided you furnish us fresh pulp samples. Or, if you say so, we will have a "Virginia" man call and talk over your requirements with you.

Industrial Division
VIRGINIA SMELTING COMPANY
Dept. 418, West Norfolk, Va.

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Field Offices: New York • Boston • Memphis • Chicago
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Available in Canada and many other countries

Why Felts work better and last longer when cleaned with...

POTENTOL

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The original non-ionic DETERGENT

POTENTOL is a neutral, non-ionic detergent and cleaner that gets into every nook and cranny of paper mill felts, thoroughly cleans out soils, and leaves felts in an ideal, thirsty, wet out condition. It works quickly and can't be precipitated by lime, acid, alum, alkali or paper mill insolubles. It's easily prepared and used and rinses out completely. Felts are soft and clean, operate at peak efficiency and life is often extended by as much as ten weeks. You get better paper too, with no discoloration.

Many mills are now using POTENTOL for continuous felt washing while making paper. The obvious economies are: less down time—no stopping of the machine to remove felt marks, and fewer shutdowns for felt change over. Felts always operate at greater efficiency and maximum amounts of soil, unwanted pigments, dirt, insoluble soaps, grime and grease are removed easily.

HERE ARE **6** ADVANTAGES YOU GET WITH **POTENTOL:**

1. **Neutral, non-ionic action**
2. **Easy dissolving for clear solution**
3. **No corrosion of metals**
4. **Efficiency unaffected by acids, alkalies, lime, magnesium, aluminum salts, anionics or cationics**
5. **Complete rinsing out**
6. **Safe, thorough washing of all type felts**

Find out what POTENTOL can do for your felts. Write, wire or call for complete details and a free testing sample.

HARRY MILLER CORP. HAMICO 4th & BRISTOL STREETS PHILADELPHIA 40, PA.

Manufacturers of: IMMUNOL, POTENTOL, ACTIVOL BEADS, HAMITERGE, DEFOAMERS, TAR SOLVENTS

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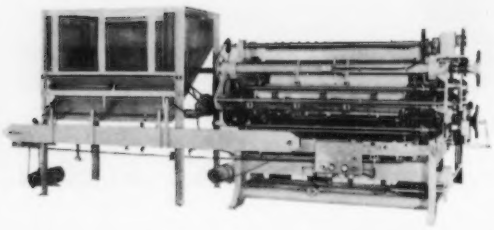
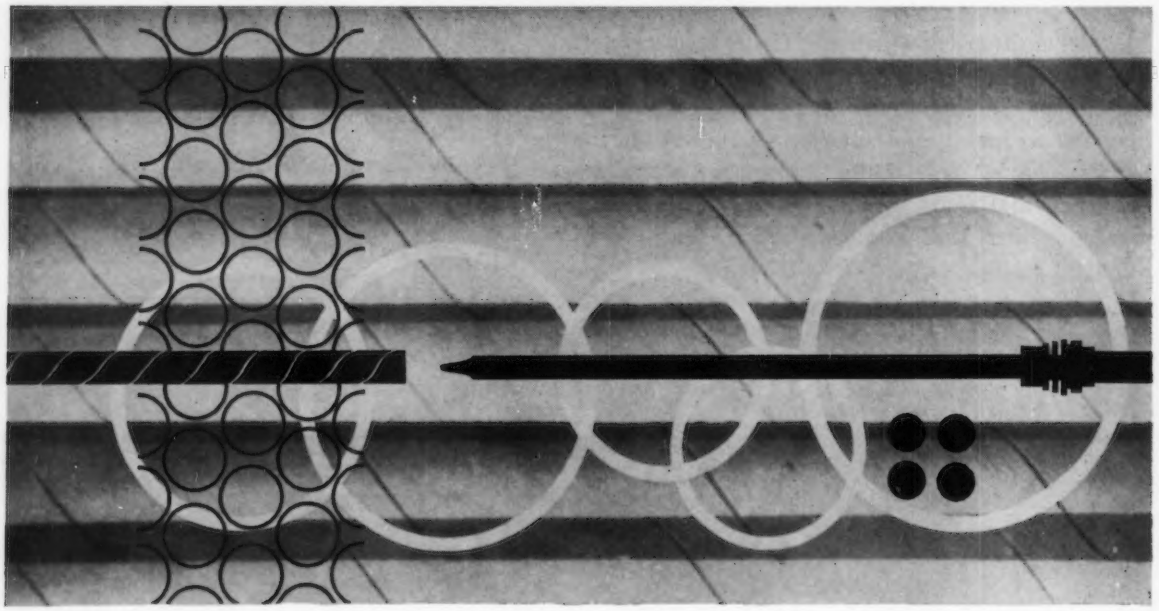
Creative engineering
and development
of converting machinery



New Automatic Core Loader — loads up to 15 long cores per minute! This new PCMCo loader, Model 2765, has a new system for feeding and positioning cores, using a simple conveyor and pushing action with no reciprocating mass. An exclusive roller system guides the mandrel into the incoming core for positive feed and positioning. Cull discharge and storage plus log storage facilities and slit roll discharge are other production-slanted design features. Just right for coordination with a Paper Converting automatic rewinder. One of the important new converting machines from the builder you should think of first.

PAPER CONVERTING MACHINE COMPANY - GREEN BAY, WISCONSIN

Folders, Rewinders, Embossers, Napkin and Core Machines, Letterpress and Flexographic Presses, Special Converting Machinery



Underwraps...

Fine gift wrappings that say "we care" are made with Glidden Zopaque® Titanium Dioxide

On any occasion when gifts are given, quality wrappings made with Glidden Zopaque lend added appeal to each package.

Zopaque is ideal for formulation of finest paper products, providing maximum whiteness and brightness and a high degree of opacity. It also enhances the appearance of colored and printed stock.

Write now for complete details about the various grades of Glidden Zopaque Titanium Dioxide specially developed for beater addition and coatings.

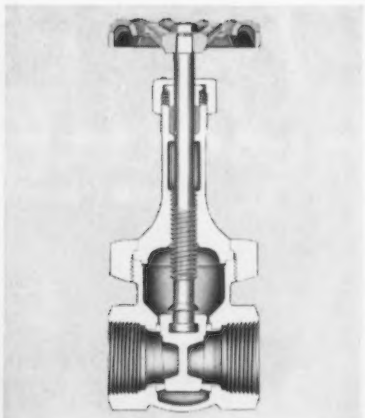
QUALITY Glidden PRODUCTS

FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
Chemicals—Pigments—Metals Division
Baltimore 26, Maryland

(This advertisement is printed on paper stock containing Glidden ZOPAQUE Titanium Dioxide.)

Expanded-type body rings. Made from Crane Exelloy—a 12% chromium stainless steel. Provide a hard surface that resists abrasive damage, indentation and scoring by foreign matter. Rings are rolled in, can't work loose. Seating wear is taken by easy-to-replace bronze disc.



Quality in every detail inside and out. In rising and non-rising stem patterns—¼ to 3 inches—screwed ends. Working pressures: 200 lb. steam, 550° F.; 400 lb. non-shock cold water, oil, gas and air, 150° F.

Cylindrical body shape. Proved on high-pressure steel valves. Increases body strength without adding bulk. Distributes pressure uniformly. Reinforces seating area against distortion and chance for leaks.

12% chromium stainless steel seat rings make Crane 200-pound bronze gates last longer

Here is a close-up of Crane quality that shows you why these 200-pound bronze gate valves perform more dependably than ordinary bronze valves, with less maintenance.

For example, instead of integrally cast seats, they have long-wearing 12% chromium stainless steel body rings. Rings are rolled in... can't work loose in service. This also prevents leakage around rings. The quickly replaceable bronze disc takes normal seating wear.

Crane 200-pound bronze valves are competitively priced with bronze valves which do not have these and other important features. Why pay for less than Crane offers you? For complete facts, see your Crane Representative.

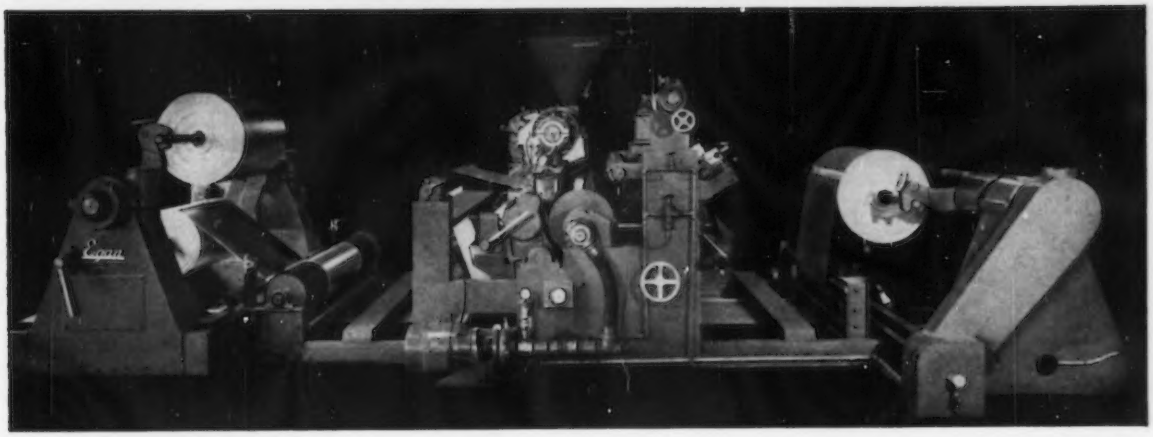
Write for Circular AD-2285. Gives complete technical data on both rising and non-rising stem patterns.

CRANE® VALVES & FITTINGS

PIPE • PLUMBING • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

why an Egan extrusion coater?



One minute's reading time tells you why!

Above unit installed at Protective Coatings Corporation, Clifton, New Jersey

Egan is the world's leading manufacturer of extrusion coating equipment. Eighty-five percent of all companies operating extrusion coater-laminators rely on Egan field-tested equipment.

The extruder itself is a proven, dependable, high-capacity, low maintenance unit. Barrel thickness is calculated for optimum heat transfer. Inexpensive high watt-density ceramic resistance heater bands provide fast heat-up, and *improve* your plant's power factor (ceramic heater bands are economical to buy *and* operate).

The center fed, single piece die minimizes dead storage areas and leakage. Rectangular construction lends itself to more even heating without warpage. Standard or extended die jaw designs are available.

Critical parts of the extruder and die are precision manufactured to close tolerances, permitting accurate gauge control and production of thinner films.

A specially designed double-shell internal spiral chill roll, furnished with mirror or matte finish, assures maximum heat transfer rates for cooling the laminate uniformly (less than 2° F differential across roll). It further permits use of smaller diameter cooling rolls which reduces trim losses, the largest single factor in production waste.

Various laminator designs can be furnished, depending upon the substrate to be handled. Open construction of the laminator permits maximum access and visibility by the operator.

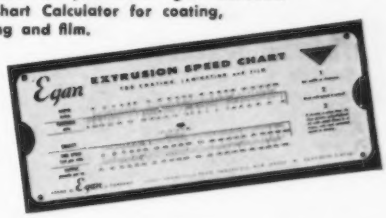
Packaged water circulating and trim disposal systems are also provided.

In addition, patented horizontal and vertical adjustments of the laminating nip, which are essential for obtaining maximum adhesion, are included.

A variety of unwinds and winders can be furnished, depending upon individual requirements (from hand-splice operations to automatic flying splice and flying transfer equipment).

In short, Egan gives you the complete machine package, manufacturing both the extruder and the web handling equipment.

FREE Write for your free Egan Extrusion Speed Chart Calculator for coating, laminating and film.



Egan **FRANK W. EGAN & COMPANY**

SOMERVILLE, NEW JERSEY CABLE ADDRESS: EGANCO—SOMERVILLE (NJ)ER)

Manufacturers of machinery for the paper converting and plastics industries

PAPER-coaters, laminators, treaters, gummers, saturators, embossers, unrolls, rerolls, drying systems, other components; **PLASTICS**-extruders, dies, take-offs, other accessories.

REPRESENTATIVES: MEXICO, D.F.—M.H. GOTTFRIED, AVENIDA 16 DE SEPTIEMBRE; JAPAN—CHUGAI BOYEKI CO., TOKYO. LICENSEES: GREAT BRITAIN—BONE BROS. LTD., WEMBLEY, MIDDLESEX; FRANCE—ACHARD-PICARD, REMY & CIE, 36 RUE D'ENGHIEN X, PARIS; ITALY—EMANUEL & ING. LEO CAMPAGNANO, VIA BORROMEI 1 B/7, MILANO; GERMANY—ER-WE-PA, ERKRATH, BEI DUSSELDORF.

Du Pont's New Laboratory Paper Coater can be used to simulate most commercial coating operations.

Du Pont can show you how "Elvacet" (polyvinyl acetate emulsion) can give your paperboard excellent grease resistance

(at lower cost than laminating!)

Now with a specially designed paper coater Du Pont can show you how *on-machine* coatings of "Elvacet" 81-900 can save you the time and extra cost of laminating greaseproof paper to board. These coatings give excellent grease resistance at lower cost than laminates.

Board coated with "Elvacet" polyvinyl acetate emulsion lies flat, has little tendency to curl, gives no trouble with broke recovery. In addition, with "Elvacet" you can use conventional adhesives in fabricating cartons.

For complete details on "Elvacet" and its advantages as a grease-resistant coating for paperboard, contact the Du Pont representative nearest you. He'll answer your questions or make prompt arrangements for coating your paper at Du Pont's Sales Service Laboratory.

E. I. DU PONT DE NEMOURS & CO. (INC.), ELECTROCHEMICALS DEPT., VINYL PRODUCTS DIVISION, WILMINGTON 98, DELAWARE

DU PONT

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

ELVACET®

(polyvinyl acetate emulsion)

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ONLY THE

Trade Mark

Cleaner

PROVIDES NOT ONE...

...BUT ALL 6

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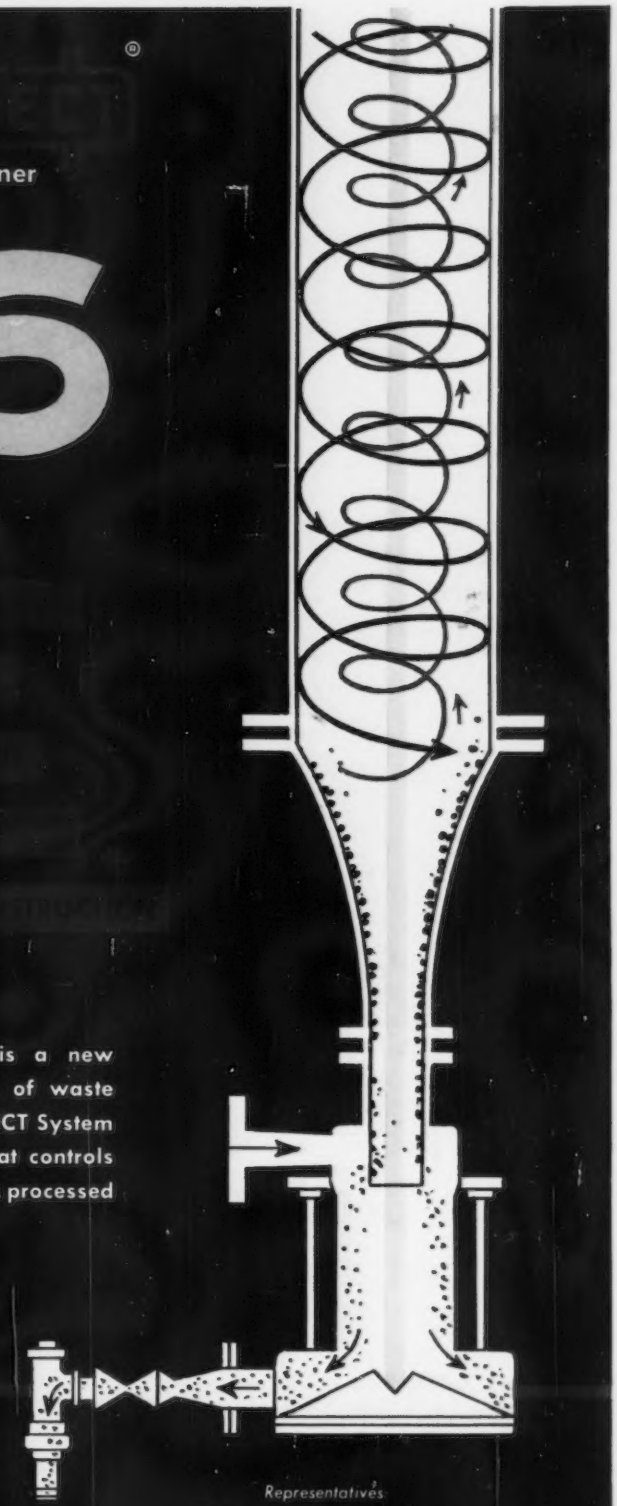

The NICHOLS FREEMAN VORJECT is a new concept in the centrifugal separation of waste solids from liquids. Heart of the VORJECT System is its exclusive elutriation chamber that controls fibre losses from 3-5 lbs. per ton of stock processed . . . or less than ¼ of one percent.

"Better check VORJECT."

For more information write to:

NICHOLS

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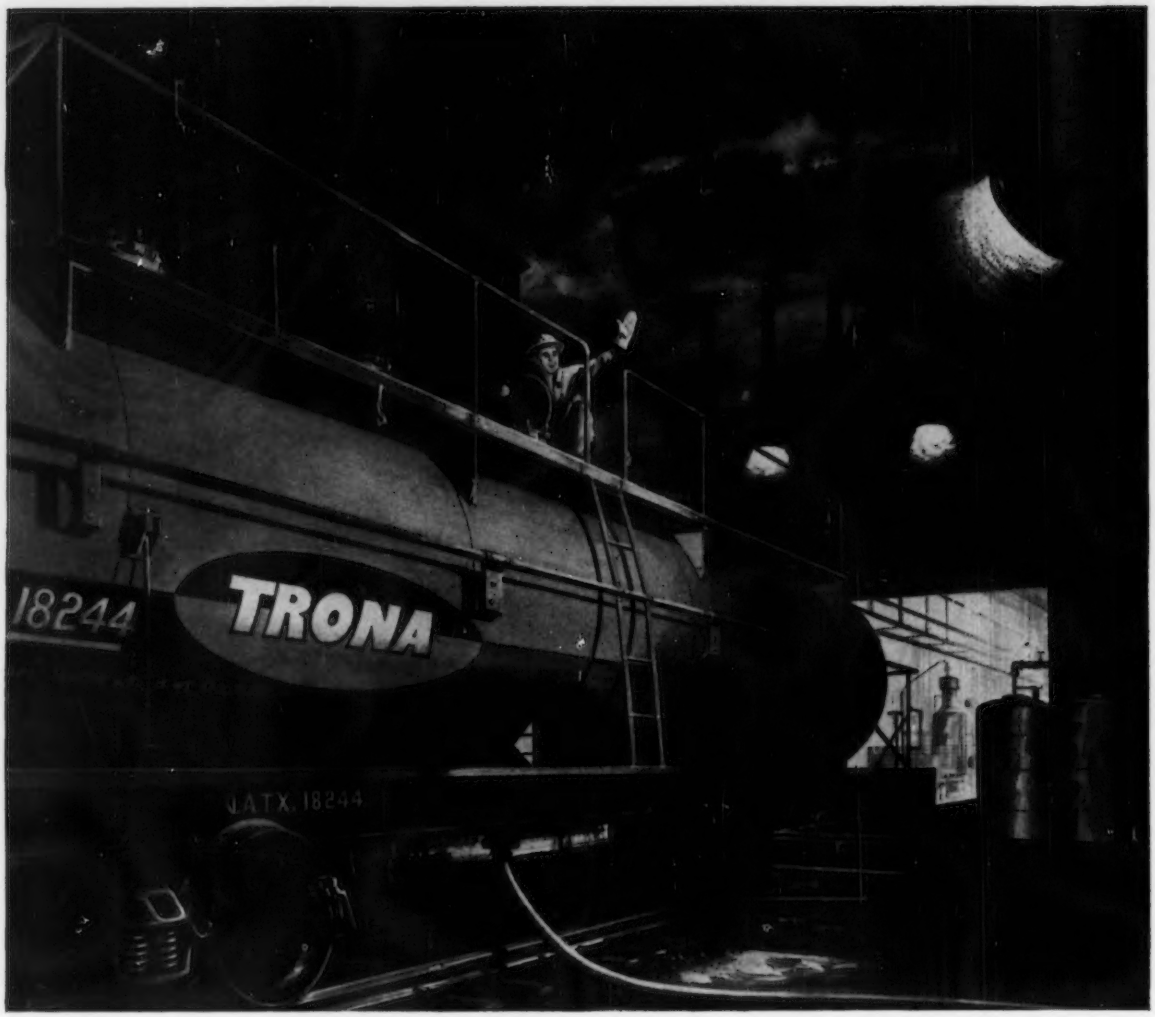

New Trona® tank car fleet speeds sodium chlorate service

Custom-built for American Potash & Chemical Corporation, a new and thoroughly modern fleet of tank cars is being added to better serve Sodium Chlorate users from coast-to-coast.

Designed to carry bulk $NaClO_3$, the cars are being equipped with a specially engineered system for unloading that saves both manpower *and* hours. A protective lining maintains product purity. The new design also stresses easy accessibility, increased safety and convenience.

Watch for these new tank cars—reflecting the quality of Trona chemicals and service—modern to the minute.

American Potash & Chemical Corporation

TRONA®

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STANLEY STEEL STRAPPING SERVES the PAPER INDUSTRY

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- *Long Experience*
- *Factory-Trained Specialists*

More speed in packaging . . . greater protection in transit. That's why more and more modern paper mills are relying on The Stanley Steel Strapping System and Stanley's complete line of POWER Steel Strapping Tools, Machines and Equipment.

Put Stanley paper packaging and carloading experience to work for you. Let the Stanley Steel Strapping Specialist present his ideas for improvement . . . and test-prove those ideas in your own mill.

Write STANLEY STEEL STRAPPING,
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STANLEY — INSURE IT — SECURE IT WITH STANLEY STEEL STRAPPING

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

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This famous trademark distinguishes over 20,000 quality products of The Stanley Works, New Britain, Conn.—hand tools • electric tools • builders hardware • industrial hardware • drapery hardware • automatic door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany. In Canada: Steel Strapping Division, The Stanley Works of Canada, Ltd., Hamilton, Ontario

The need for a multi-use, low cost wet strength resin is answered in UFORMITE 711. This modified urea-formaldehyde resin may be used with both bleached and unbleached pulps. At low cost, this cationic resin provides wet strength for a wide variety of paper products from tissues to bag paper.

UFORMITE 711 saves time as well as money. It arrives at your mill in ready-to-use form. There's no formulating or premixing needed. Simply dilute UFORMITE 711 with water to the concentration most suitable for your processing procedures, and add it to the pulp system. Regular pH control with acid and/or alum means no change in normal mill procedures. While wet strength develops rapidly, fresh broke can be repulped readily.

If you're interested in these savings, you'll want a copy of the new technical booklet describing the use of UFORMITE 711 in papermaking, along with technical information on other UFORMITE wet strength resins by Rohm & Haas. Write for a copy.

Chemicals for Industry

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

Representatives in principal foreign countries

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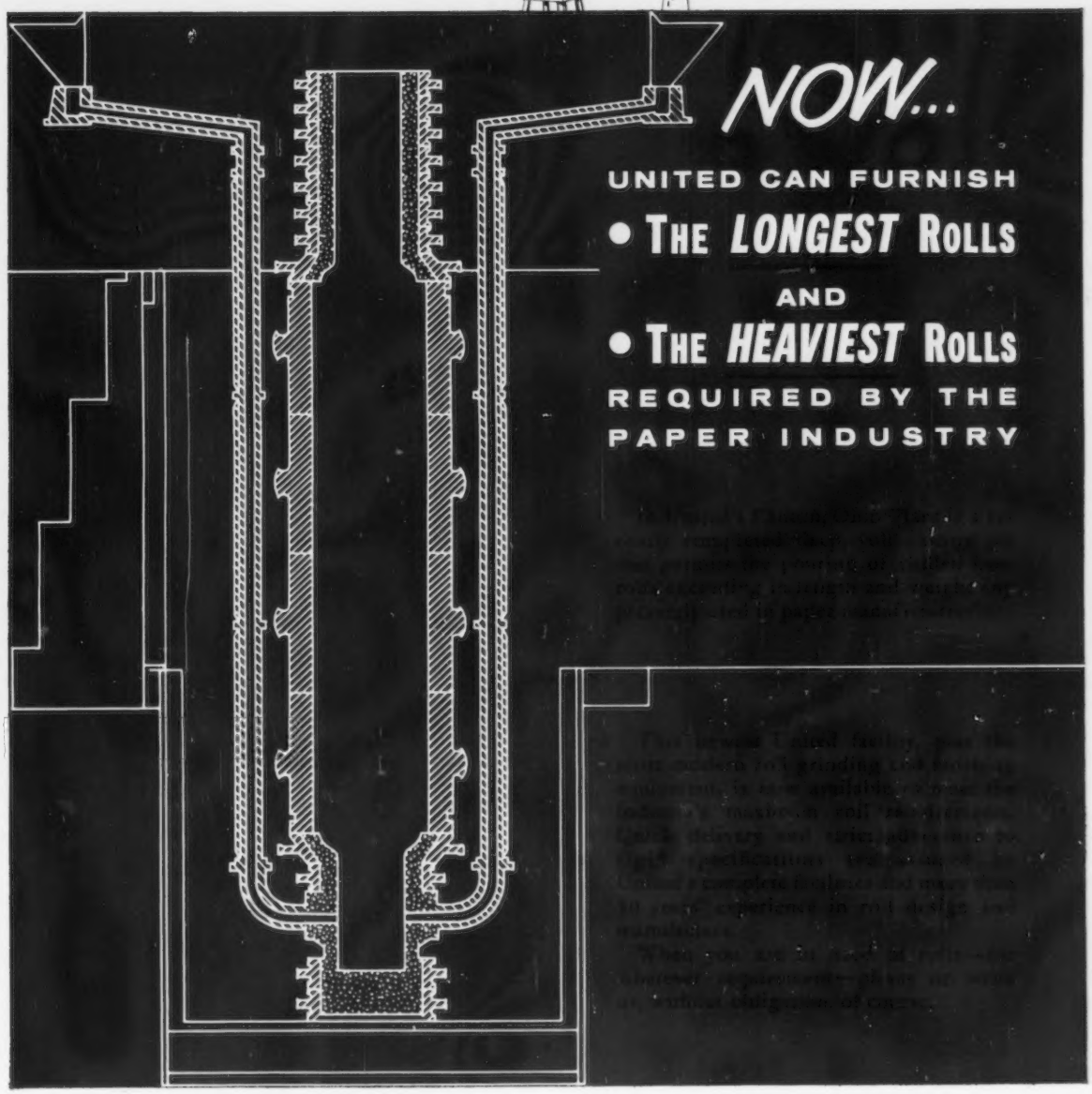
UFORMITE 711

UNITED® PAPER MILL ROLLS



NOW...

UNITED CAN FURNISH

- THE *LONGEST* ROLLS

AND

- THE *HEAVIEST* ROLLS

REQUIRED BY THE PAPER INDUSTRY

UNITED ENGINEERING AND FOUNDRY COMPANY

PITTSBURGH, PENNSYLVANIA

Plants at PITTSBURGH • VANDERGRIFT • YOUNGSTOWN • CANTON • WILMINGTON

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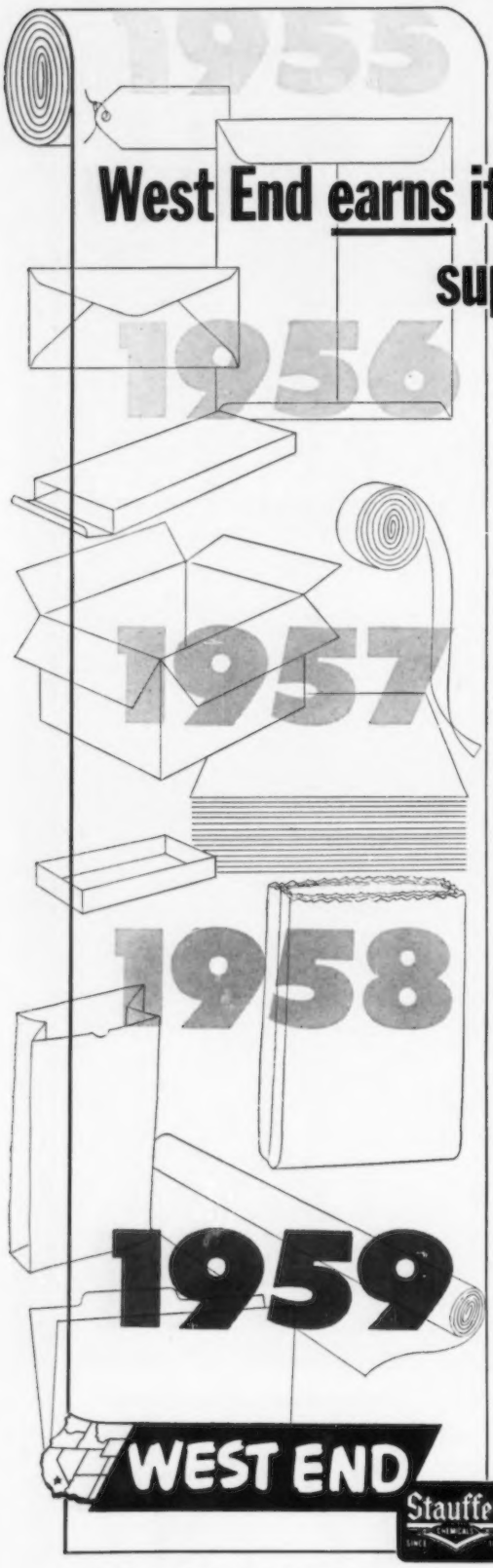
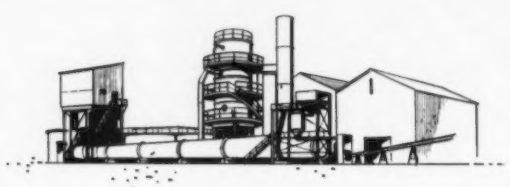
Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other Heavy Machinery. Manufacturers of Iron, Nodular Iron and Steel Castings, and Weldments.



West End earns its position as a responsible supplier of salt cake

In 1955, with its first offering of salt cake, West End assured the Industry of an ability to meet long-term commitments based on vast natural raw material supply, ample production and storage capacity, rapid and efficient transport facilities. By unconditional fulfilment of every commitment for over 4 years, West End has conclusively demonstrated its complete reliability as a major source of highest quality salt cake. Every normal and unanticipated requirement has been met with equal ease and dispatch.



Today, with even larger facilities and a determination to maintain the reputation it has earned, West End is solidly qualified to handle any size requirement in a wide marketing area where it is a logical source of salt cake for kraft paper manufacturers. You are invited to consult with us on the over-all economics of using West End Salt Cake.

WEST END

Stauffer CHEMICAL SINCE 1885

WEST END CHEMICAL COMPANY
DIVISION OF STAUFFER CHEMICAL COMPANY

EXECUTIVE OFFICES: 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT: WESTEND, CALIF.

DU PONT SURVEY

printing jobs. They also are in a posi-

the agency, the art director and layout

THREE NEW "PONTAMINE"* DIRECT DYES GIVE IMPORTANT PRODUCTION ECONOMIES

The "Pontamine" family of direct dyes now offers you a unique fast brown, a new bond yellow, and a new bond blue that can be used to produce highly attractive colors with good (or better) lightfastness. Even more important, these new dyes have characteristics which can lead to worthwhile production economies. Whether your mill makes sized papers or tissues, kraft or board stock, the chances are that one of the dyes will save you money.

"Pontamine" Fast Brown NP

Most direct brown dyes have tended to produce "browns" or "tans" of too much brightness. As a result, it has been necessary to use shading colors. "Pontamine" Fast Brown NP, however, gives reddish, true-brown shades that usually need *no shading*.

You'll find Fast Brown NP an economical way to color wrapping or blotting grades, board stock, and other grades of paper. You can use it with good results in either straight or combination shades. It handles easily too —no dusting, practically no foaming.

"Pontamine" Bond Yellow CS

An extremely versatile dye, "Pontamine" Bond Yellow CS permits low-cost coloring of most paper grades: bond, writing, mimeograph, duplicator, and envelope stock. Unsized papers such as tissues can also be economically dyed; alum is not necessary.

The "yellows" produced by this dye are attractive and brilliant. Its non-twosided properties are good, especially when fillers such as titanium dioxide or clay are used. Neither is the pH critical. "Pontamine" Bond Yellow CS has good affinity for the fiber even at moderately high pH values. However, the dye can be readily bleached out by using a hypochlorite bleach.

"Pontamine" Bond Blue B

Attractive bright blue shades and non-twosided characteristics make this dye an excellent candidate for bond and cover papers. Its lightfastness is very good . . . and it bleaches easily to permit re-use of trim waste.

Compared to the usual bond blues, "Pontamine" Bond Blue B is more economical to use. Another advantage: it reaches full color value with only a short mixing time. Still another: it is more resistant to fading when exposed to gas fumes in printing plants.

This direct dye also gives attractive "greens" when shaded with Du Pont yellow dyes. As you prefer, you can produce green shades with good lightfastness or with good non-twosidedness and satisfactory lightfastness at lower cost. "Pontamine" Bond Blue B can also be used for tissues since its retention is quite good on papers made without size, alum or both.

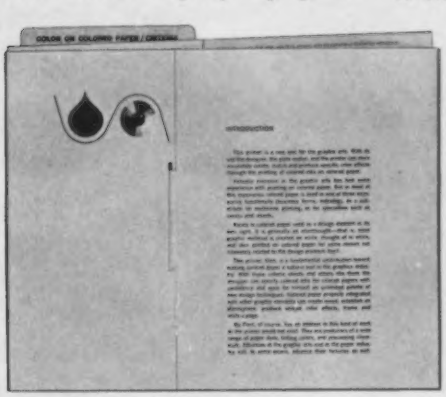
Investigate these new "Pontamine" dyes soon. For more details, or application suggestions, simply get in touch with the nearest Du Pont district office.

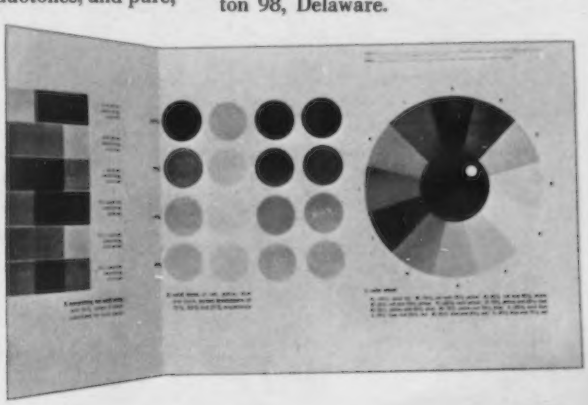
news from Du Pont

LATEST DOINGS OF THE DU PONT COLOR COUNCIL

What does it take to increase the acceptance and use of colored paper? That's the assignment of Du Pont's Color Council—a group of people experienced in art, color, and printing. This year, as one of their projects, the Council has developed a primer—"Color on Colored Paper"—a collection of seven sheets of offset paper dyed as close as possible to spectrally pure, deep shades of the primary and secondary colors plus fluorescent. On these are printed the fundamental elements of most modern printing: type reverse, halftones, duotones, and pure, screened and overlaid tint blocks. This primer demonstrates a technique by which paper manufacturers and merchants can assist graphic designers and printers utilize their colored papers more effectively.

For further information on the primer and other Color Council projects write: Color Council, Nemours 2420-A, Du Pont Company, Wilmington 98, Delaware.





DU PONT SURVEY SHOWS PRINTERS AND ARTISTS ARE THE KEY TO GREATER SALES OF COLORED PAPER

A Du Pont survey on colored paper offers strong evidence that more color stock can be sold through aggressive selling and promotion programs. Printers already believe that there is a definite trend to color printing, and that it means more profit for them. Second, most commercial artists and advertising agency art directors feel that colored paper offers them important advantages in design.

But the undertaking of promotions is only one key to success; another is in reaching the primary specifying influences. The survey provides some convincing answers on this score.

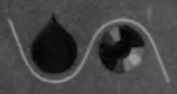
Printers Could Have Great Influence

On the average, printers do the planning and layout of 45% of their printing jobs. They also are in a position to recommend colored paper in many other cases. However, eight of ten suggest colored paper in only about 11% of all jobs handled. If printers are encouraged to take the initiative more often, there is little doubt that they can become one of the most important influences in the use of color stock.

Artists Are a Big Influence

When advertising agencies design printed pieces, they specify the paper for all but 7% of their jobs. Within the agency, the art director and layout man say they usually decide whether colored paper or white paper will be used. This decision, the survey reveals, is extremely important because most printed material is produced on the same paper used in layout. All evidence points up the importance of art personnel, and the fact that they must be included in any selling or promotional programs.

Ways in which mills can effectively promote colored paper will be discussed in future articles. Be sure to look for them.



HIGHLIGHTS OF COLORED PAPER SURVEY

How Often Printers Say They Suggest Color Stock

% of Printers Who Do	% of All Jobs
34%	5% or less
25%	6% to 10%
9%	11% to 15%
8%	16% to 20%
8%	21% to 25%
14%	26% to 50%
Only 2%	Over 50%

Specifying Influences for Agency Jobs
(In Artists' Opinion)

Who Specifies	% of Jobs
Art director	67%
Layout man	12%
Account executive	6%
Printer	1%
Client	14%

news from Du Pont

ADDITION OF FOA-2 TO HEAVY FUEL OILS SAVES MONEY 3 WAYS

Burner nozzle after two days of operation with solvent-type additive

Burner nozzle after nine days of operation with Du Pont FOA-2

Mill heating and power plants can now use heavy fuel oils with greater over-all economy, simply by adding Fuel Oil Additive No. 2 to storage tanks. In one case alone, $20 of this fuel oil additive has saved a mechanical cleaning bill of $800. Here's how FOA-2 can save you money, too.

First, it helps prevent sludging in tanks, plugging of strainers and deposits on burners. Second, FOA-2 cleans up fouled systems so effectively that you can often eliminate expensive mechanical cleaning and costly downtime. Third, this new kind of additive should improve your over-all operating efficiency.

Request further information about FOA-2 today from a Du Pont Sales Representative, or by writing direct to us on your company letterhead.

DU PONT
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DYES AND CHEMICALS

Better Things for Better Living
. . . through Chemistry

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Organic Chemicals Department
Dyes and Chemicals Division
Wilmington 98, Delaware

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PHILADELPHIA 3, PA., 1616 Walnut St.
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PORTLAND, ORE., 1238 N. W. Glisan St.

*Reg. U.S. Pat. Off.

Taylor ANNOUNCES THE TRANSCOPE* INDICATOR

Where recording function is not required, the 90K Indicator incorporates all other features of famed 90J Recorder.

The new 90K Series pneumatic Dial Indicator brings you TRANSCOPE efficiency . . . with the initial economy of process variable indication only. It can be quickly interchanged with the TRANSCOPE Recorder, thanks to plug-in connections. 90K features include:

- Color-coded target-type pointers against full 10″ scale—for exceptionally easy reading.
- Powerful "Servomatic" powered pointers—assure precisely accurate pointer positioning.
- Front-of-panel control response settings give results at a glance.
- Same standardized components as in the 90J Recorder—minimum parts inventory necessary.
- In a control station, continuous indication of set, process and valve pressure.

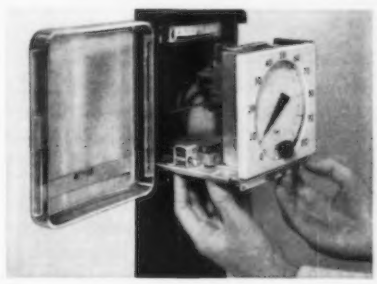
Optional features include: indication of a second variable on a separate dial; Cascade switch for pneumatic set control; electric or pneumatic process alarms.

For full details, call your Taylor Field Engineer, or write for **Catalog 98347.** Taylor Instrument Companies, Rochester 1, New York, or Toronto, Ontario.

*Reg. U.S. Pat. Off.

Front of Panel Adjustments. Gain, Reset and Pre-Act* response adjustments can be changed where you see the results while making the change.

Servo-operated Pointers are positioned with 150 times greater power than with conventional bellows, which also permits one or two high-low process alarms—electric or pneumatic.



PLUG-IN Connections. The main slide, including indicator and set point transmitting mechanism, is removed by loosening one holding screw.

Taylor Instruments **MEAN ACCURACY FIRST**

7½ hp Ajusto-Spede Drive

Highly automated processes and rigid quality controls are among the many unique features enabling Rayonier Incorporated's chemical cellulose plant, located at Jesup, Ga., to produce various grades of outstanding cellulose pulp. The plant can produce, interchangeably, quality pulp for paper making as well as a superior cellulose used in the manufacture of Tyrex-viscose tire cord.

The plant is a duplicate of an adjoining mill built by Ebasco four years earlier. Ebasco worked with Rayonier engineers in designing both these versatile plants and managed their construction.

When you are planning a new plant or expanding or modernizing present facilities, call on Ebasco's experience in the pulp and paper industry. The many services Ebasco offers are described in our booklet, "Engineering, Design and Construction for Industry". For a copy, write: Ebasco Services Incorporated, Dept. O, Two Rector Street, New York 6, N. Y.

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Consulting Engineering • Design & Construction • Facilities Planning • Financial & Business Studies • Industrial Relations • Insurance, Pensions & Safety • Purchasing, Inspection & Expediting • Rates & Pricing • Research • Sales, Marketing & Public Relations • Systems, Methods & Budgets • Tax • Valuation & Appraisal • Washington Office

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7½ hp Ajusto-Spede Drive

Common motor-drive housing for units up to 7½ hp saves space — can be foot- or flange-mounted. Larger sizes up to 100 hp with individual motor and drive housings mounted integrally.

The Louis Allis AJUSTO-SPEDE® drive is more compact, precise, and trouble-free

Here's an adjustable speed drive that allows *truly precise* machine operation. Speed regulation is automatic and stepless — results in faster, more efficient production at lower cost, with less waste, and minimum wear on equipment.

These and other benefits are yours when you use the improved Louis Allis Ajusto-Spede drive. For example, it can be set before or during operation to deliver any desired speed within its range. Its *exclusive* tachometer feedback circuit monitors the output speed and *automatically corrects speed and holds it* regardless of load changes.

This improved drive requires minimum maintenance. Its stationary field has no brushes, commutators, or slip rings to cause trouble. The source of power is an equally trouble-free standard a-c squirrel cage motor.

®Ajusto-Spede is a registered trademark of the Eaton Mfg. Co.

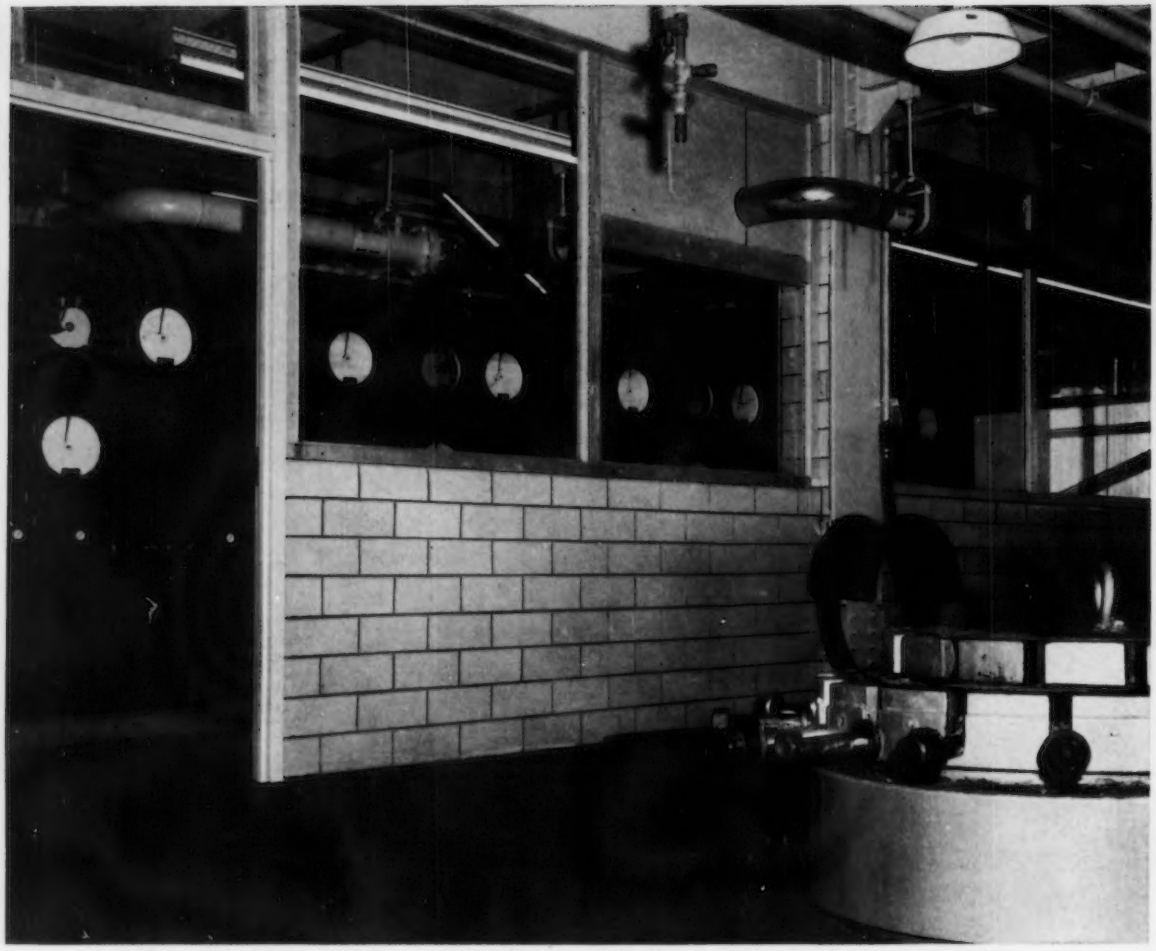
The cast-iron housing keeps out dirt, chips, and moisture — resists corrosion.

The compact Ajusto-Spede also saves space. Integrally-mounted motor and drive simplify handling — can be easily adapted for installation on new or existing machines. Controls can be mounted at the machine or any other convenient position.

The Louis Allis Ajusto-Spede drive is the practical solution to almost every application that requires dependable, easily controlled adjustable speed. It is the answer to precise operating speeds for machine tools, process machinery, test equipment, windups, conveyors, printing presses, and other equipment. Contact your Louis Allis District Office for information and application help. Or write for bulletins 2750 and 2800 — The Louis Allis Co., 467 E. Stewart St. Milwaukee 1, Wis.

LOUIS ALLIS

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES



Digester control panel at Bowaters Carolina Corp., Catawba, S. C., containing 5 Foxboro Digester Control Systems, together with liquor-fill and chip-fill systems. Instruments shown are Foxboro cam pressure controllers, digester top-and-bottom temperature recorders, and relief flow controllers.

BOWATERS CAROLINA CORP. REPORTS:

"Uniform pulp – cook after cook with Foxboro Automatic Digester Control"

Completely automatic from fill to blow — that's the operation of the five, 4,300 cubic-foot kraft digesters at Bowaters Carolina's new mill at Catawba, S. C.

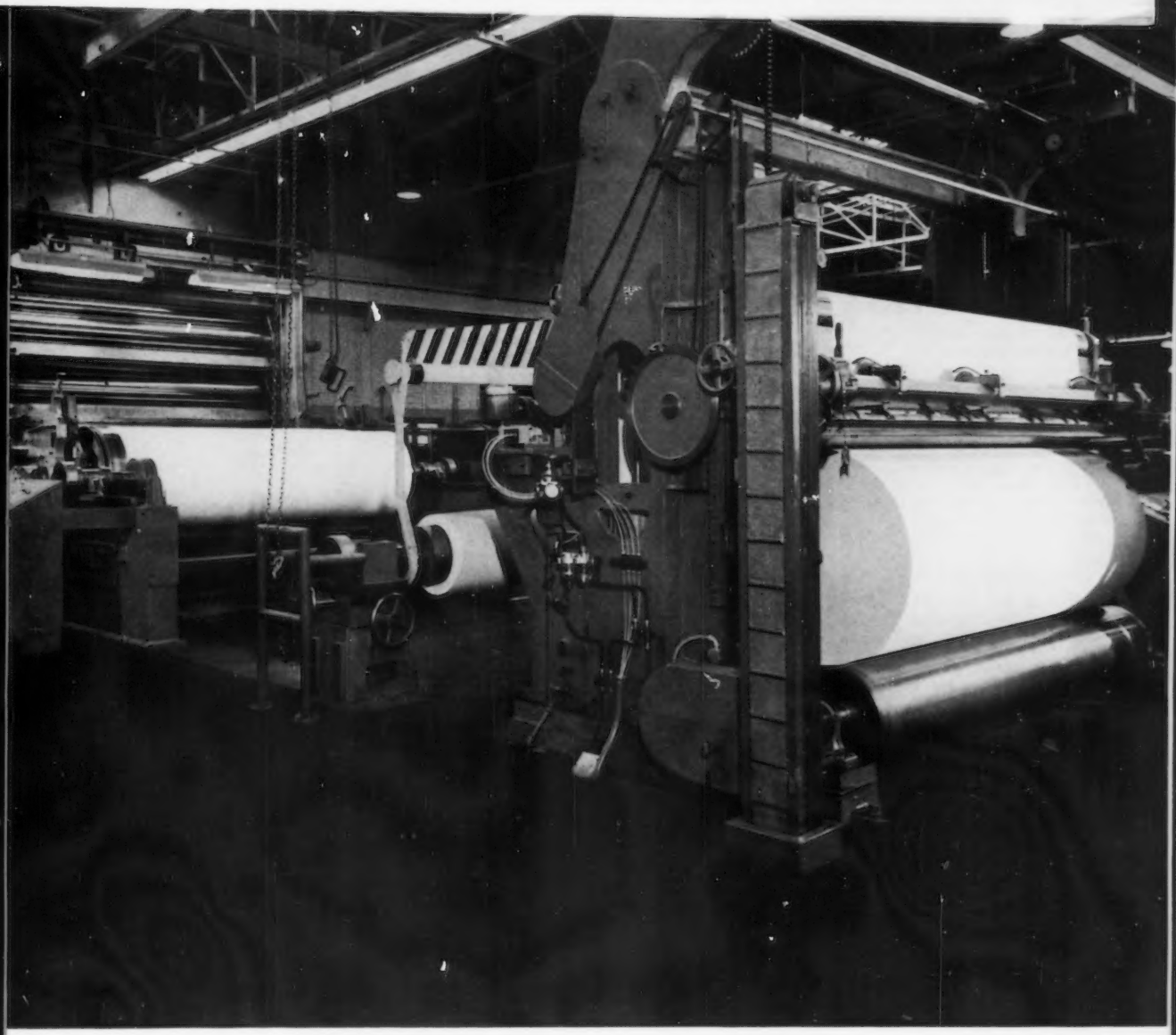
Each of Bowaters Carolina's five digesters has its own Foxboro packaged control system. To start a cooking cycle, the operator simply turns a single knob — then Foxboro takes over. Results: perfectly controlled digester circulation with virtually no liquor pull-over; uniform permanganate; practically no rejects — all resulting in high yield and excellent uniformity.

Your digester control story can be the same, too. Get full details on this revolutionary kraft digester control system from your nearby Foxboro Field Engineer. Or write direct for engineering data sheet 260-50 which has full information. The Foxboro Company, 2312 Norfolk Street, Foxboro, Massachusetts.

FOXBORO
REG. U. S. PAT. OFF.

AUTOMATIC DIGESTER CONTROL

LOUIS-ALLIS
MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES



Mill Modernizes...Eliminates Rewinding... Saves Time and Trouble

Extensive modernization by the Nekoosa-Edwards Paper Company includes the Kidder 110-inch Superspeed Mill Winder shown above — an important new installation at the Nekoosa plant.

In one operation this machine slits and winds rolls up to 60″ in diameter . . . operates at 3000 feet per minute . . . has a multiple disc, water-cooled unwind brake and automatic, pneumatic tension control.

Advantages like these will help you meet today's requirements for paper machine efficiency speed and cut your finishing room costs. For details write to Kidder Press Company, Inc., Dover, N. H. Eastern Sales Office: Empire State Bldg., New York 1, N. Y. Midwest Sales Office: 400 Washington Bldg., Madison 3, Wis. West Coast Representative: Bojanower Machinery Service Corp., 5270 E. Washington Blvd., Los Angeles 22, California.

Make Good Impressions Faster with

Kidder

Slitters and Rewinders, Flexoprinter®, Letterpress and Gravure Presses

quick round-up for busy Ad-men

subject: ***The magazine that covers the paper and pulp market***

weekly — PAPER TRADE JOURNAL is edited for production management. Published weekly.

editorial content — Every week: NEWS, including information about new and improved products, materials, supplies. TRENDS, methods, prices, end uses of paper and pulp, capacity, consumption. PRACTICAL IDEAS for improving methods, procedures, production efficiency.

editors — Men with practical mill experience *plus* engineering and technical education as well as background.

readership — Consistently voted "most useful paper" by mill customers and prospects in independent reader surveys by suppliers. High pass-along readership; 6.6 readers per mill copy.

audited — Audited by ABC since 1917. Member of ABP. Renewal rate—78.17%.

advertiser acceptance — Since 1872 PAPER TRADE JOURNAL has continuously carried the most advertising to production management men in paper and pulp mills.

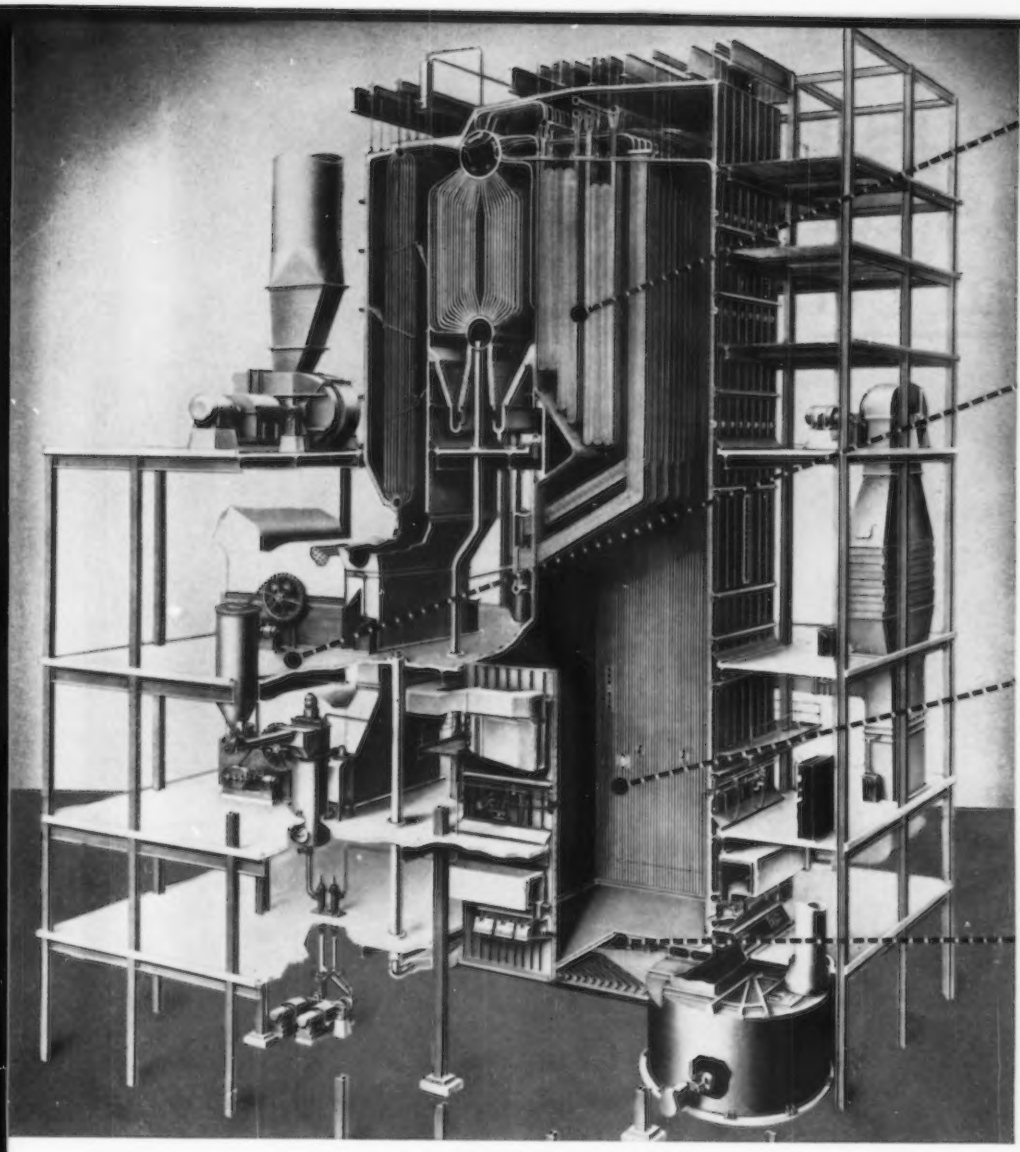
more information — Phone or write nearest representative or call publisher in New York—(Area code 212) PL 7-2370.

PAPER TRADE JOURNAL

"the most useful paper"

49 West 45th Street, New York 36, N. Y.

PITTSBURGH • CHICAGO • DENVER • LOS ANGELES • DALLAS
MIAMI • HOUSTON • SAN FRANCISCO • SEATTLE • PORTLAND



1. PANEL CONSTRUCTION

The widely spaced self-cleaning panel type superheater and screen — developed by C-E — provides no foothold for slag. Gas passage is smooth and unimpeded. Slag build-up is minimized, gas flow and heat absorption is uniform across the width of the furnace, surfaces are cleaner and soot blower action is more effective.

2. CONTROL

Furnace stability is assured because evaporative heat is controllable to compensate for density differences in incoming liquor, regardless of limited multiple-effect evaporator capacity. Liquor temperature is controlled accurately and automatically, and fuel-air ratios are automatically proportioned to maintain the furnace atmosphere required for high reduction.

3. TANGENTIAL AIR

Secondary air is introduced tangentially above black liquor sprays. Fuel-air mixture is intimate and complete. Gas velocity upward through the sprays is decreased, ash entrainment in gases leaving furnace is reduced. Combustion is completed in lower part of furnace, furnace exit gas temperature is reduced.

4. DECANTING HEARTH

A layer of chilled smelt is held in contact with the water-cooled furnace floor. Molten smelt rides on top of the chilled layer and leaves the furnace without touching hearth refractory or floor tubes. The cost and inconvenience of downtime due to hearth failure is eliminated.

Why "C-E" Means Economy in Chemical Recovery Systems

Until 1954, 350 to 400 tons was considered the size limit for chemical recovery units. Technical obstacles prevented bigger, more economical installations. Then, in October, 1954, C-E began taking orders for 500-ton units and larger! C-E breakthroughs had overcome the industry's "capacity barrier".

By combining the above four developments, a baffleless boiler and modern retractable soot blowers, C-E produced the first unit capable of handling 2,000,000 pounds of dry solids in 24 hours. This and a dozen similar giants are far exceeding expectations, so great are their economies.

You can benefit from this extensive experience — by working with C-E on your chemical recovery problems. Call the C-E office nearest you, or contact the C-E Paper Mill Division in New York.

COMBUSTION ENGINEERING

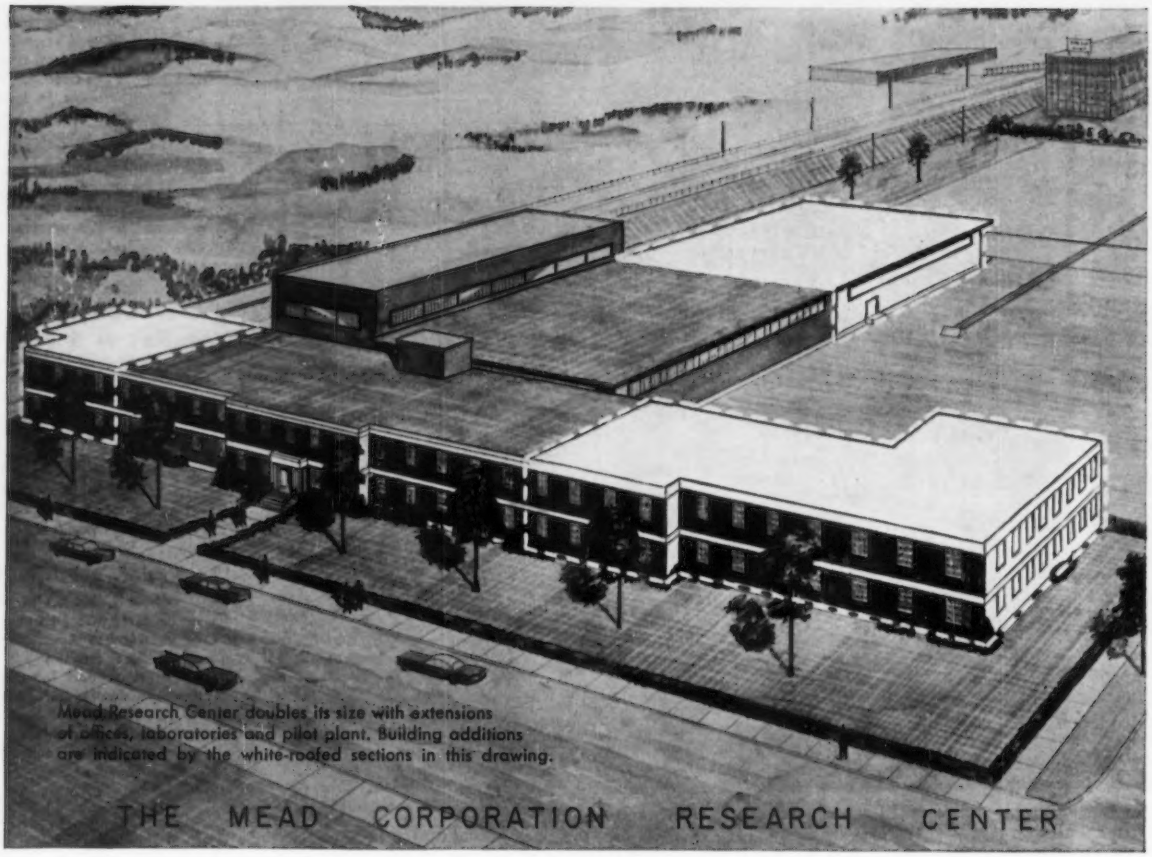
Combustion Engineering Building • 200 Madison Avenue, New York 16, N. Y.

C-247

CANADA: Combustion Engineering-Superheater Ltd.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

There is a place for you in this expanding Research Center



Mead Research Center doubles its size with extensions of offices, laboratories and pilot plant. Building additions are indicated by the white-roofed sections in this drawing.

As Mead doubles the laboratories, pilot plant and offices of its Research Center in Chillicothe, Ohio, we seek experienced men to fill out our growing research staff.

EXPERIENCED CHEMISTS, CHEMICAL ENGINEERS, PAPER CHEMISTS for the areas of:

Pulping and Bleaching—laboratory and pilot plant investigations.

Coating—development of methods, formulations, applications and improvements.

Paper Quality—improvement of physical properties of paper.

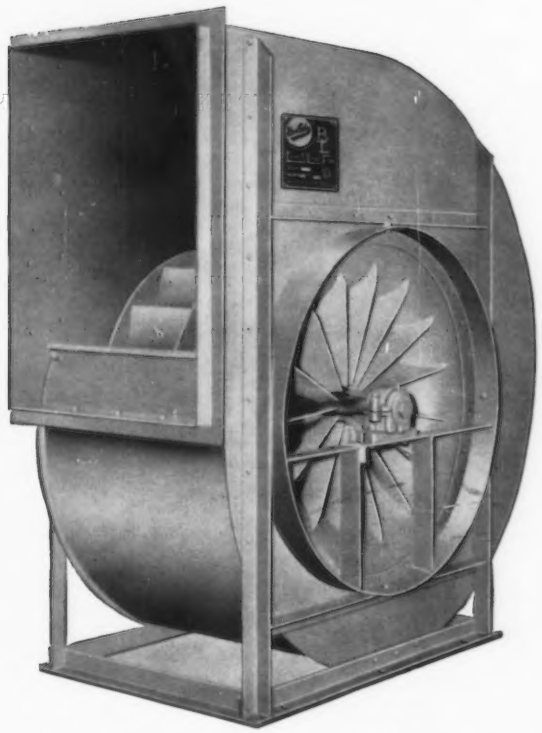
POLYMER RESEARCH CHEMISTS: A Ph.D. Chemist (polymer or physical) to conduct fundamental research. Investigations of the characteristics of cellulose and other polymeric materials used in papermaking.

MECHANICAL ENGINEERS: Experienced mechanical engineer to do development work through process improvement and design. Will concern himself with the extension of theoretical approaches into practical applications.

PRODUCT DEVELOPMENT AND IMPROVEMENT—A technical background with experience in plastics, resins, elastimers, latices, or paper is the basic requirement to fill the new positions in expanding Research and Development New Products Section. Add to this imagination, creativeness, product-mindedness and you describe the individual we are looking for.

Mead offers opportunity for recognition and growth with friendly working and living conditions. Location, Chillicothe, a pleasant town of 28,000 in Southern Ohio. Your inquiry with full resume will receive immediate, confidential attention. For further information, write: Technical Employment Supervisor, Industrial Relations Department

THE MEAD CORPORATION *Chillicothe, Ohio*



"Buffalo" Type "BL" Fan For Supplying Ventilating, Air Conditioning & Air Cleaning Systems.

MAXIMUM AIR MOVING EFFICIENCY WITH MINIMUM MAINTENANCE

Quiet, efficient, economical operation of the "Buffalo" Type "BL" Fan in general air moving service is assured by these superior "Buffalo" engineering features:

- The smoothly-curved true half circle inlet bell holds turbulence to a minimum. Fixed directional guide vanes are standard; variable inlet vanes are optional.
- Streamlined wheel with backward curved blades attains peak efficiency. All wheels are factory tested and balanced to minimize vibration.
- Smoothest possible air flow is enhanced by the correctly shaped scroll of the wheel-contoured housing.
- "Buffalo" designed non-overloading factor provides stable, quiet output from free delivery to shutoff.
- Rugged "Buffalo" construction (extra-heavy at points of greatest strain and wear) insures unsurpassed dependability and long, maintenance-free life. This, in turn, results in the absolute minimum maintenance time for which all "Buffalo" products are noted.

Be sure to investigate the "Buffalo" Type "BL" Fan for your Class I and II air moving jobs. Call your nearby "Buffalo" engineering representative, or write for Bulletin F-104.

"Buffalo" Fans bring you the famous "Q" Factor — the built-in QUALITY that provides trouble-free satisfaction and long life.

BUFFALO FORGE COMPANY
Buffalo, N. Y.
Buffalo Pumps Division, Buffalo, N. Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING • FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

FIVE FELTS
IMPROVED BY

4-D TREATMENT

Why bother with single-purpose felt treatments to combat *individually* the 5 main causes of felt deterioration? — namely wear, stretching, plugging, and bacterial and chemical attack.

Today, applied to more than 55% of all Huyck felts, 4-D is the only *all-purpose* felt treatment that improves (1) toughness . . . (2) finish . . . and (3) openness *all at once* — thus adding a "4th dimension" to these three essential properties of papermakers' felts.

To learn more about the many ways 4-D can help you produce better paper, and more of it, at lower felt cost per ton — talk to your *Man-from-Huyck*.

HUYCK FELTS

Huyck Felt. Co.,
Rensselaer, N. Y.;
Aliceville, Ala.;
In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario.
Division of F. C. Huyck & Sons

NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

UNBLEACHED

BLEACHED

ELECTRICAL PULPS

OTHER SPECIALTIES

YOU CAN GET ALL OF THESE SOFTWOOD KRAFT PULPS FROM DRYDEN

We are sure you know about the high quality of Dryden Bleached Sulphate Pulp. But did you know that you can also make Dryden your single source of supply for many other kraft pulps?

Dryden Unbleached—widely recognized for its high tensile strength—for everything from twisting tissues to boxboards.

Dryden Electrical Pulps—tailor-made for cable wrap, transformer board and capacitor tissue.

Dryden's Other Specialties—formulated to meet many unusual requirements. (We produce pulps for anti-tarnish papers, for example.)

We would be glad to make up a single boxcar shipment of several of our pulps for you to try in your own operations.

DRYDEN PAPER COMPANY, LIMITED

DRYDEN, ONTARIO, CANADA

SOLD BY: **Anglo Paper Products, Ltd.**

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SALES REPRESENTATIVES IN THE UNITED STATES:

Northeastern Paper Sales, Inc.

400 Madison Avenue, New York 17, N. Y.

20 North Wacker Drive, Chicago 6, Ill.

Trends

Forecasts 1960 Production Up 4%

Paper and board production in 1960 will be close to 4% over this year, predicts Dr. Louis T. Stevenson in a report just issued by Tucker, Anthony & R. L. Day, 120 Broadway, New York, entitled "Forecast of 1960 Paper Production." Dr. Stevenson indicates the following increases: Paper (except newsprint and building) 3%, newsprint 5%, paperboard 4% and building papers and boards 3%. We do not complete our own forecasts until the beginning of the year; however, at this time we feel Dr. Stevenson's predictions to be definitely on the conservative side, if the economy returns to conditions prevailing this year prior to the steel strike.

Pulp Production Growth Continues

Pulp production in October ran 7% above October 1958. For the ten months to date, production was up 13% according to the U. S. Pulp Producers Ass'n. Domestic shipments of U. S. market pulp were 4% ahead of the same month last year and exports were up 1%.

Canadian Industry Maintains Gains

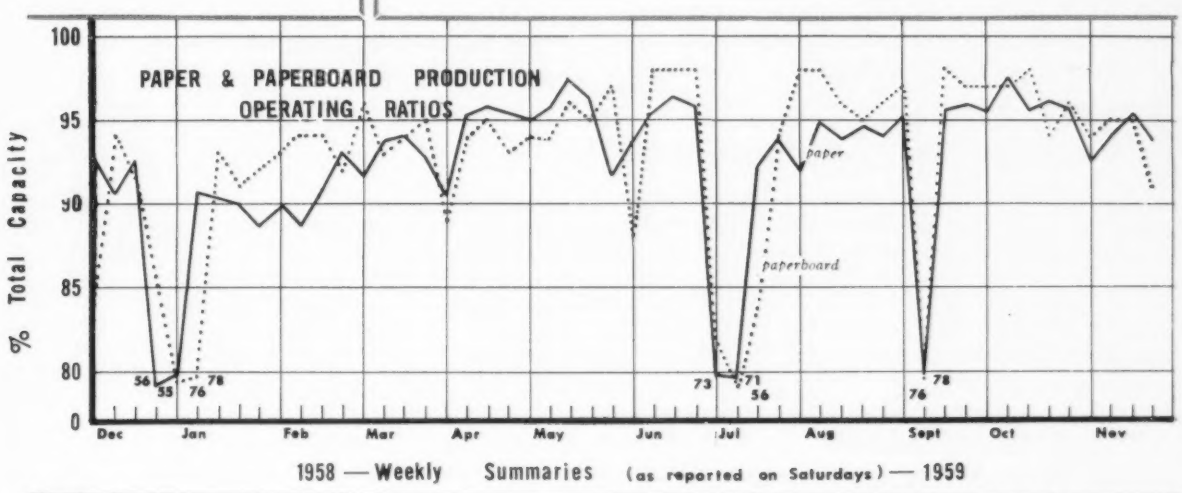
Canadian pulp production in October was 8% above the same month last year. Pulp output in the ten-month period was up 5%. Pulp exports were up 5% for the month and 10% for the period. Canadian fine paper production in October was 11% above a year ago while the ten month figures show a 10% rise. Canadian paperboard output was ahead 5% for the ten month period and 3% for October.

Two New Mills Reported

Two new mills and a Canadian expansion project are reported on the first news page in this issue.

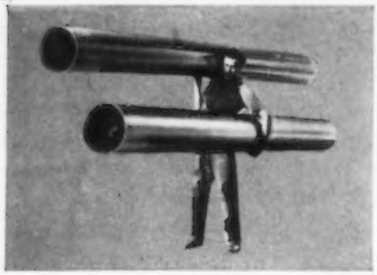
Mill Maintenance A Vital Subject

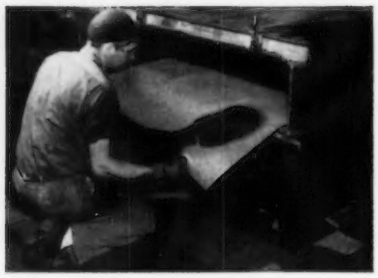
"Probably nothing will contribute more to the successful operation of a mill than good maintenance," stated an industry leader in a recent speech. This magazine fully recognizes the great importance of maintenance and has planned an extensive series on this subject covering all types of equipment. The first of approximatly 50 articles devoted to this subject appears in this issue.



PVC stops corrosion

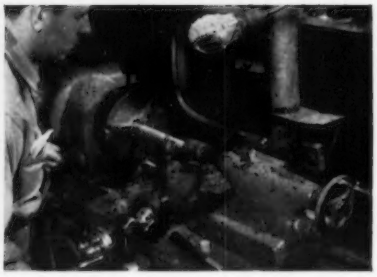
(POLYVINYL CHLORIDE)





Ryertex-Omicron PVC is an exceptionally versatile industrial plastic with outstanding resistance to 281 corrosive solutions and gases. Its light weight (only 1/6 that of steel) and its great strength are but two of its money-saving advantages. It is nontoxic, noncombustible, nonmagnetic and nonsparking. It is immune to weather, rotting and aging.

PVC comes in the forms you need



You can choose PVC pipe in sizes from ½" through 14". Valves, flanges and fittings are precision-made by injection molding. Bars and sheets are fully extruded, not laminated.

The techniques of fabricating PVC are similar to those for metal. PVC can be cut, drilled, formed, bent, welded, threaded and machined ... is easy to assemble and install.

A new way to cut costs

Application possibilities are virtually endless. New uses for PVC are being discovered nearly every day. A Ryerson plastics specialist will be glad to help you find out where you can cut costs with this remarkably efficient material. Phone or write your nearest Ryerson plant—now! Send the coupon for our PVC booklet.

RYERSON STEEL

INDUSTRIAL PLASTICS AND BEARINGS DIVISION

Free booklet!

Joseph T. Ryerson & Son, Inc.
Box 8000-A, Chicago 80, Illinois

Please send me a free copy of your PVC Bulletin 80-3.

Name_____

Company_____

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of turning out 100,000 tons of paper each year from wood from broad-

PAPER TRADE JOURNAL

WEEK OF DECEMBER 14, 1959

$40-Million Pulp Mill Planned for Georgia

Plans for construction of a $40-million pulp and paper mill in South Georgia were announced by John Neely of Manchester, Ga., president of the Southern Land, Timber and Pulp Corp. Mr. Neely stated the new mill will have a capacity of 400 tons of finished paper products per day.

"We have acquired 90,000 acres of timberland in more than 30 Georgia counties and in Alabama," he said. "Members of the corporation's board of directors own another 400,000 acres of timber-producing land—enough, with what we have, to guarantee the company adequate supplies of pulpwood for the operation of a mill even larger than the first $40-million unit."

Southern Land is owned by more than 11,000 stockholders, who have already invested more than 11½ million dollars in the company.

Southern Land has started conducting site and stream pollution studies. This work is being done at three locations in two different areas along the Flint River near Albany and along the Chattahoochee below Columbus.

The proposed mill would be the first pulp and paper mill in the area south of Macon and west of Valdosta. It would produce bleached kraft paperboard, and perhaps facial and industrial tissues. It is thought that construction will start in the last half of 1960, and be ready to go into production 18 to 22 months later, some time during 1962.

Edward L. Cowan, former chief engineer, Bowaters Southern Paper Corp., has been appointed executive vice president of the company.

Southwest Lumber To Build Mill in Arizona

Final award for the sale of six million cords of national forest pulp timber in the Southwest was announced by the U. S. Department of Agriculture. The Southwest Lumber Mills, Inc., of Phoenix, Ariz., was awarded the timber, located on the Colorado Plateau of Arizona and New Mexico in the Kaibab, Coconino, Sitgreaves, Apache, Tonto, and Cibola National Forests. The timber sold consists of small and low quality ponderosa pine and other species which will be thinned and salvaged from the forests.

The sale contract extends over a 30-year period. Assured of a long-range supply of raw material, the company is said to be speeding up plans for construction of a pulp and paper mill near Snowflake, Ariz. The mill will have a daily capacity of 150 tons of kraft paper or board and 210 tons of newsprint.

Union Bag-Camp Plant Breaks Record

Union Bag-Camp's Savannah plant broke another world's production record in November when it turned out 64,355 tons of kraft paper and paperboard on its six paper machines.

Future tonnages of paper and paperboard are going to be even bigger, according to H. Y. Charbonnier, manager of the plant's pulp and paper division.

The company's big new number seven paper machine is scheduled to begin production around the latter part of December, and beginning in January, monthly figures will reflect seven production units instead of the current six.

The November record figured out to a daily average of 2,145 tons of kraft product, establishing what is believed to be a world's record, Mr. Charbonnier pointed out.

Last month's average daily tonnage figure broke the previous record of 2,079 that had been set in August.

The new number seven paper machine has been under construction for more than a year.

Donohue Brothers Plan $1.2 Million Expansion

Donohue Brothers, Ltd., are planning a $1,250,000 expansion program at their groundwood and newsprint mill near Murray Bay, Que. A new power boiler will replace two older units and the groundwood mill will be expanded to produce an additional 40 tons of pulp per day.

Sonoco Builds $200,000 Laboratory

Sonoco Products Co. has announced construction of a new $200,000 research center at its main plant in Hartsville, S. C.

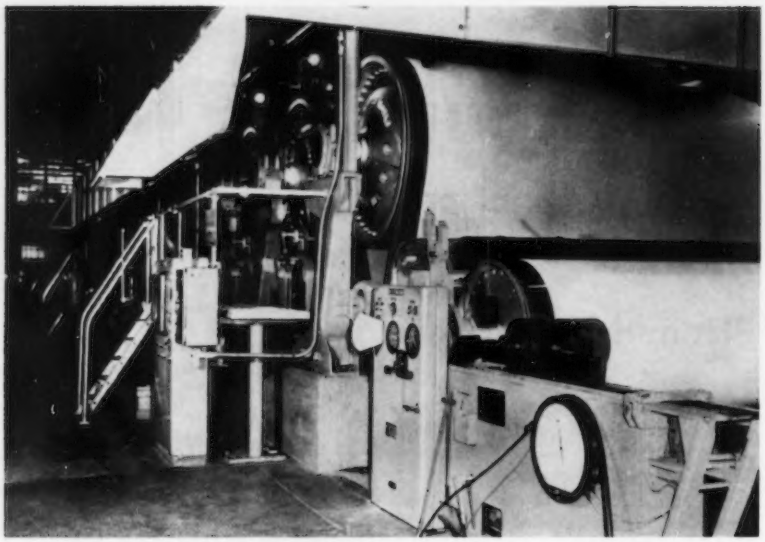
Construction on the new project has been scheduled to start about mid December and be completed within six months.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending November 28, 1959, at 93.7 per cent, compared with 96.2 per cent, revised for the preceding week. The ratio was 87.7 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending November 28, 1959, at 91 per cent, compared with 95 per cent for the preceding week and 88 per cent for the corresponding week a year ago.

(Detailed statistics on page 64)



DEXTEX, a new wash-and-wear interlining, is the first textile of its type to be manufactured on a paper machine. It is produced by C. H. Dexter & Sons, Inc., with Dacron polyester fibers.

C. H. Dexter & Sons Enters Textile Field with New Product

C. H. Dexter & Sons, Inc., Windsor Locks, Conn., a 192-year-old paper company, has announced its entrance into the textile field with Dextex, a unique new interlining developed initally for use in wash-and-wear apparel. N. Erlanger, Blumgart & Co., Inc., and Dubin-Haskell-Jacobson, Inc., the two largest suppliers of linings and interlinings in the world, have formed a jointly owned company, Earl-Tex Products to market Dextex.

The textile fibers department of E. I. Du Pont de Nemours & Co., Inc., cooperated with the Dexter company in the development of the Dacron fiber used in the manufacture of Dextex. The fiber is engineered specifically for the processing methods utilized in paper making. The new product is produced on a specially modified fourdrinier at the Dexter paper mill.

The entrance of C. H. Dexter & Sons, Inc., into the apparel field has an interesting note, in that the company was founded by a clothier, Seth Dexter, who, soon after landing in the Massachusetts Bay Colony, introduced the wool carding machine for home use so that the women folk could make "homespun clothes" for the men. In 1767, he started a company that has been in operation ever since, starting as a saw mill and gristmill business and later changing its emphasis to paper making. The present name of the firm comes from the founder's grandson, C. H. Dexter, who took his son and son-in-law into the business. The president today is David L. Coffin, representing the seventh generation of the founder's family to head the company. His father, Dexter D. Coffin, is chairman of the board.

Still near the original site, C. H. Dexter & Sons, Inc., is the oldest company in Connecticut and among the ten oldest continuously operating companies in the United States. It is the world's largest producer of tea bag papers and makes some 110 types of industrial and commercial papers for such uses as automotive oil and air filters, mimeograph stencils, lens tissue, industrial air filters, vinyl film backing, electrolytic capacitor tissue, dye covers for rayon "cakes," meat casings, tapes, silver wrap, vacuum cleaner bags, coffee filters, hair wave end aids, etc.

New Mill Completed In Japan

A new paper mill, claimed to be the largest in the Far East, has been completed on the outskirts of Kushiro, Japan, an eastern seaboard city in Hokkaido, by the Honshu Paper Mfg. Co.

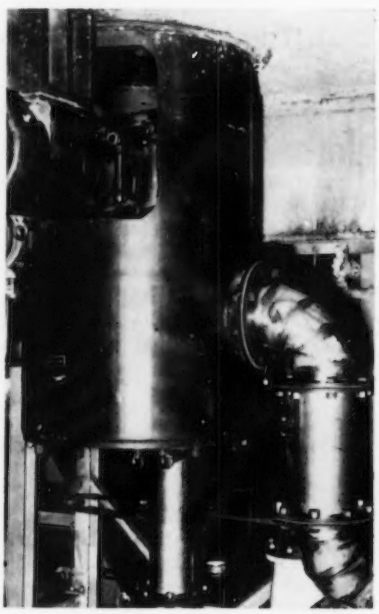
This $22.2 million mill, standing in the Otanoshige plains, is capable of turning out 100,000 tons of paper each year from wood from broadleaf trees. This amounts roughly to 40 per cent of this nation's annual paper production.

3-M Co. Installs New Model Selectifier Screens

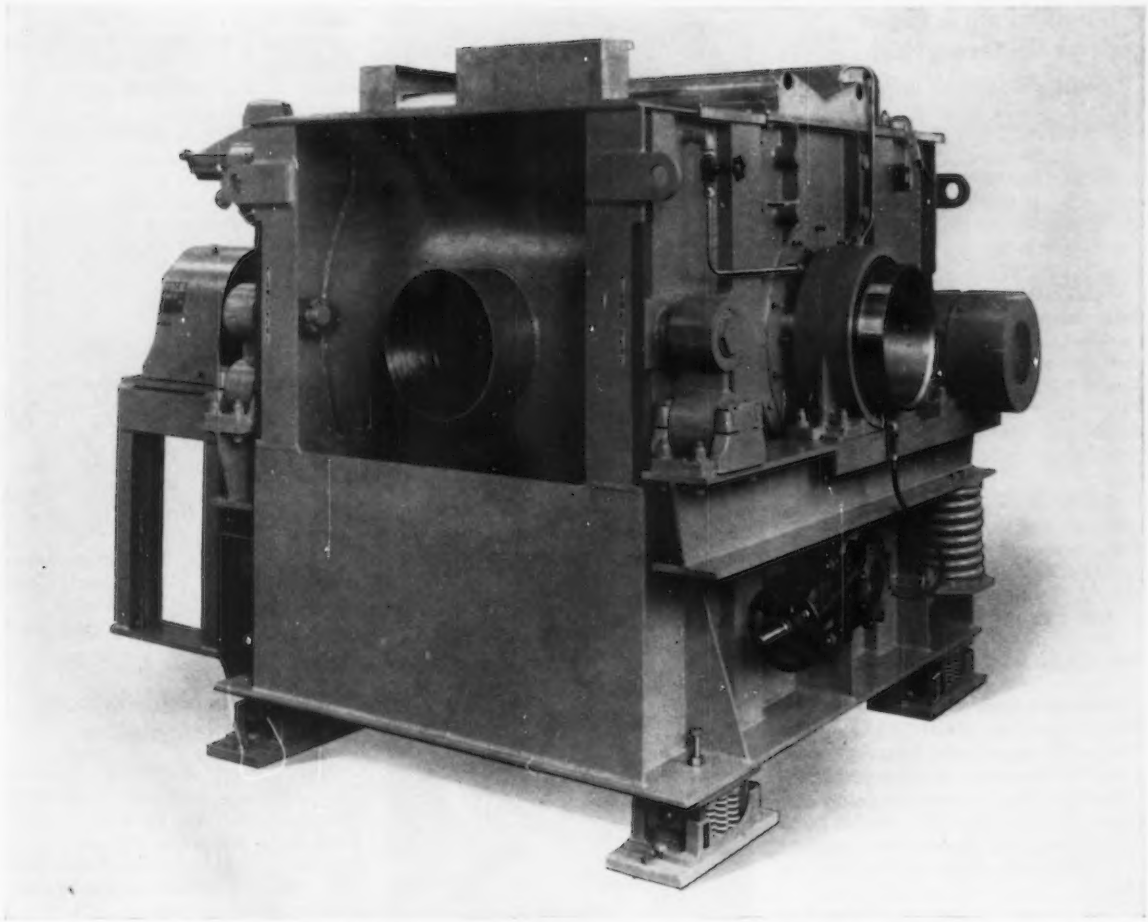
Selectifier Screen No. 1698, one of the new 12-P models recently designed and built by the Black-Clawson Co., Shartle Division, has gone into operation at Hartford City Paper Division, 3-M Co., Hartford City, Ind. The 12-P Selectifier Screen is a low capacity unit designed to handle a maximum of 1200 g.p.m. at 0.5 per cent consistency. It operates under pressure and completely full of stock at all times.

The new compact, low capacity 12-P model was installed in record time and started up with no difficulties. It is in operation ahead of Hartford City's No. 1 paper machine, a 120-inch fourdrinier producing a high quality, lightweight sulphite grade, used as base stock for famous "Thermo-Fax" brand copy papers, a 3-M product.

All three paper machines in the Hartford City mill are now equipped with Selectifiers. Two larger 24-P models are installed ahead of No. 1 and No. 2 paper machines.



FIRST of the new 12-P models, Black-Clawson's Selectifier Screen No. 1698 in successful operation at Hartford City Paper Division of 3-M Co.



SAVE SPACE • PUMPING PIPING • POWER PAPER . . . with BIRD VIBROTOR SCREENS

60 tpd of 1.7% unbleached sulphite through .012″ slotted plate.
68 tpd of 1.6% bleached sulphite through .012″ slots.
75 tpd of 1.7% unbleached sulphate through .014″ slots.
80 tpd of 1.9% bleached sulphate through .012″ slots.
86 tpd of 1.7% semi-chemical board through .018″ slots.
148 tpd of 1.9% deink through .012″ slots.
83 tpd of 1.7% newsprint through .014″ slots.

Let us submit layouts and estimates.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Canadian Pulp & Paper Output Up Over 1958

Canadian fine paper output in October was 25,674 tons, an increase of 10.7 per cent from the year ago figure of 23,198 tons. Production in the first ten months also gained substantially at 234,182 tons as against 213,627 tons in 1958.

Shipments to the end of October were up 6.9 per cent at 226,535 tons as compared with 211,990 tons last year. Included in this year's total were exports of 14,328 tons, up 9.8 per cent from the 13,048 tons exported in the same period last year. Fine paper shipments for the month totalled 23,131 tons. In October last year total shipments were 22,279 tons.

Coated paper output in the first ten months totalled 28,212 tons. Shipments were 28,074 tons. In the same period last year, coated paper output was 25,397 tons and shipments were 25,726 tons.

PULP AND PAPERBOARD

Canadian woodpulp production in October was a record 987,113 tons. Increasing paper and board production and improved exports both contributed to the substantial gain. Output in October last year was 911,735 tons. The previous monthly record of 940,309 tons was set in October 1956.

Pulp output to the end of October was also well ahead of the year ago figure at 8,822,609 tons as compared with 8,347,930 tons.

Exports during October were 230,032 tons (219,656 tons last year) and in the first ten months totalled 2,034,495 tons (1,834,248 tons in 1958).

Domestic pulp use to the end of October was 6,777,907 tons as compared with 6,476,463 tons in the same period last year.

Canadian paperboard production gained in October and the first ten months this year.

Output for the month totalled 97,763 tons up from 94,635 tons in October last year. To the end of October, production totalled 785,858 tons as against 747,090 tons in the same period last year.

Shipments were off slightly in October at 84,505 tons (84,907 tons last year) but gained substantially in the first ten months at 710,629 tons (673,890 tons in 1958).

Exports in October were 9,191 tons, up from 7,596 tons last year. To the end of October shipments abroad totalled 58,189 tons as against 64,510 tons in the same period last year.

JOSEPH KING (Right), chairman, Southeastern Division, Paper Industry Management Ass'n, presents the William A. Bridges Memorial Scholarship Awards to Kindred Pope Magette of Courtland, Va. (Left), and William Harry Peele, Jr., Plymouth, N. C. (Center), both senior students in pulp and paper technology at North Carolina State College.

NORMAN ARNOLD RUSSELL of Raleigh, N. C., (Left), a senior student in pulp and paper technology at North Carolina State College, receives a scholarship award donated by the Allied Paper Salesman's Association of New York State from Mr. King.

Paper Technology Students Receive Awards

The Southeastern Division of the Paper Industry Management Ass'n. awards each year two scholarships amounting to $200 each, these going to outstanding students in the pulp and paper curriculum at North Carolina State College. These awards are made from the William A. Bridges Memorial Scholarship Fund. This year the awards were made at the annual luncheon of the Pulp and Paper Foundation, held October 23, 1959, by Joseph King, chairman of the Southeastern Division of PIMA, to William Harry Peele, Jr., of Plymouth, N. C., a junior student in pulp and paper technology, and to Kindred Pope Magette of Courtland, Va., a senior in the pulp and paper technology curriculum.

The Allied Paper Salesman's Ass'n. of New York State makes an award of $300 each year to an out-of-state junior student in pulp and paper technology. This year the award was made to Norman Arnold Russell of Raleigh, N. C., a graduate of Needham Broughton High School there.

Salesmen's Ass'n. Forms Southeastern Section

A Southeastern section of the Salesmen's Ass'n. of the Paper Industry has been formed in Atlanta with William A. Fell, of Kimberly-Clark Corp., serving as chairman.

Other charter officers of the group are W. A. White, Jr., International, vice chairman; W. R. Kort Kamp, Mead Papers, Inc., treasurer; and Leonard E. Parise, St. Regis, secretary.

Assam Pulp Mills Selects Consulting Engineers

Manderstam, Lowe & Partners, Ltd., London (associated with L. H. Manderstam & Partners, Ltd.), have been appointed consulting engineers to the Assam Pulp Mills, Ltd., which is about to implement a project entailing the manufacture of 100 tons of pulp a day at Lamsakhang in Assam, India.

This project is a unique conception in that it will be the first non-integrated bamboo pulp unit in the world. It is to be located in the heart of vast reserves of bamboo remote from the main Indian industrial areas to which the pulp will be shipped in dry sheet form.

Attendance at Jan. Conf. At WMU To Be Limited

Because of the seating limitation of the paper industry auditorium at Western Michigan University, the fourth annual Pulp and Paper Conference January 21, 1960, will be limited to 150 persons, Dr. A. H. Nadelman has announced.

Reservations will be accepted, first come, first served, and may be made by sending $7.50 to the Division of Field Services office at the University.

The meeting is scheduled to begin at 9 a.m. and to continue through the day on the general theme of "Advances in the Mechanical Treatment of Fibers."

Chicago Conference Surveys

Pollution Abatement and Treatment

"It behooves the pulp, paper and paperboard industry to adequately treat its effluent discharge to make the stream's water suitable for reuse by others, for the maintenance of wildlife and recreation facilities, and for the protection of public health. . . . The need for water will double in the next 20 years, and, whereas, industry now utilizes 40 per cent, in 1975 industry will require 60 per cent of the need . . . it is also our responsibility to handle more prudently and effectively the water we use. . . . In the area of land management, our industry owns some 50,000 sq. mi. of forest from which water runoff is seven times greater than the amount actually used by our own processes. . . . This means our role as a supplier of water is more important than as a user of water."

These remarks by John P. Strange, president of the Institute of Paper Chemistry, launched a comprehensive two-day conference reviewing recent progress and practices in reducing stream pollution and improving water conditions through treatment and utilization of pulp, paper and paperboard mill wastes. Over 350 representatives of industry, state and Federal agencies, and universities from the U. S., Canada, and Mexico attended five sessions covering the self-purification capacity of streams, aquatic biology, removal of solids from wastes, and cutting the oxygen requirements of strong and weak effluents.

Joint sponsors of the conference were the National Council for Stream Improvement, the Institute of Paper Chemistry, and Sulphite Pulp Manufacturer's Research League. The meeting was held at the Edgewater Beach Hotel, Chicago, on December 1 and 2. Presiding was George E. Dyke, chairman of the board of Governors, NCSI. Session chairmen were: Theodore F. Wisniewski, director, Committee on Water Pollution, State of Wisconsin; Dr. Willis M. Van Horn, chief, Biology Group, the Institute of Paper Chemistry; Dr. Harry W. Gehm, technical advisor, National Council for Stream Improvement; N. L. Malcove, Marathon Div. of American Can Co. and J. M. Holderby, manager, Lake States Yeast & Chemical Div., St. Regis Paper Co.

The objective of the conference, says the Council, was to accomplish an exchange of information relating to pulp and paper industry waste disposal and treatment on an interesting regional basis. This it did by reading 18 papers covering a wide range of topics. Much of the information had previously been made available, it is noted, but hardly in such a concentration. In effect, it constituted what the meetings sponsors had hoped,—a short course in water pollution abatement.

PAPERS AND AUTHORS

Surveys and Methods for Determining Assimilative Capacity (of streams), C. J. Velz, chemist, Dept of Environmental Health, Yale University—noted how factors of rainfall, runoff, drought, physical characteristics of channels, etc., and their evaluation determine self-purification capacity of polluted streams.

Effect of Natural Growths on Assimilative Capacity, Dr. H. Heukelekian, chemist, Dept. of Sanitation, Rutgers University — described how various types of microbiological growths—bacteria, fungi, algae, protojoa, etc.—affect self purification capacity of streams.

Turbine Reaeration to Increase Re-oxygenation, Ralph H. Scott, public health engineer, Committee on Water Pollution, State of Wisconsin —cited several instances of hydroturbines in use; also remarked on cascade aeration.

Mechanical Reaeration to Increase Re-oxygenation, Dr. S. A. Ziemanski, Dept. of Chemical Engineering, University of Maine—compared vertical and horizontal rotary areators.

Requirement for the Aquatic Habitat, Dr. F. E. J. Fry, Dept. of Zoology, University of Toronto—discussed how rapid and gradual fluctuations in water temperature, dissolved oxygen, free CO_2, pH, turbidity affect fish faunas.

Effects of Pulp and Paper Mill Wastes on Aquatic Habitat Requirements, Dr. Willis M. Van Horn, Institute of Paper Chemistry—noted that dissolved oxygen (D.O.) in water is most important to fish faunas; described how various types of waste liquors affect D.O.

Filamentous Growths, Dr. Herman Amberg, Dr. J. F. McCormack, Crown-Zellerbach Corp., Camas, Wash.—cited how factors of water temperature, D.O., stream velocity, phosphorus content, B.O.D. nitrogen affected infestations of slime in Columbia River; related self-purification capacity of slimes to presence of various mill effluents.

Recovery of Usable Solids, Dr. N. J. Lardieri, National Council for Stream Improvement — listed how sedimentation units, sludge reactors, flotation devices, and filtration units remove solids from effluents.

Removal, Thickening and Dewatering of Waste Solids, Dr. H. W. Gehm, NCSI—Further described dewatering of sludge by centrifuging, pressure and gravity filtration and flotation.

Sludge Disposal, R. O. Blosser, NCSI—reviewed practices of collecting sludge, and methods of disposal —on land with cranes or bulldozers, as fill, barging to bodies of water, bacterial decomposition, composting, reuse, burning.

Spent Sulphite Liquor In-Mill Recovery, Dr. R. W. Brown and Dr. D. T. Jackson, Hammermill Paper Co.—outlined seven methods of recovery in use or in pilot plant stage.

Improvements in the Kraft Recovery Process, A. W. Pesch, So. Kraft Div., International Paper Co.—short history on the evolution of the kraft liquor recovery to its present state.

Utilization, By-Products and Marketing (of spent pulping liquors), A. J. Wiley, technical director, S.P.M.R.L. and J. M. Holderby, St. Regis Paper Co.—stated that 16 per cent of the number of sulphite mills do some recovery, and that 18 per cent of the spent sulphite liquor organics are utilized; named what product is recovered and how it is used.

Stabilization Basins and the Use of Natural Hydrographic Features (for BOD reduction of weak pulping wastes), H. F. Berger, NCSI—the use of natural ponds for settling, presettling and aeration of mill effluents.

Activated Sludge (treatment of weak wastes), J. K. Sullins, assistant technical director, Kingsport Div., Mead Corp.—told how suspended biological flocs reduce BOD of waste solids in aerating tanks.

Land Disposal (of weak wastes), R. M. Billings, Kimberly-Clark Corp. —described effects of spraying spent sulphite liquors over an area of land for a period of time.

Irrigation, Dr. I. Gellman, NSCI—use of weak pulping wastes as potential irrigation media in agricultural areas was discussed.

PJT

PAPER PEOPLE

G. L. Crozier

M. L. Perkins

R. S. Shephard

W. V. Emory

Fraser Paper Announces Appointments

J. W. D. Hierlihy, mill manager, Fraser Paper, Ltd., Madawaska, Me., has announced six appointments. G. L. Crozier was named assistant to the mill manager; M. L. Perkins, plant engineer, R. S. Shephard, assistant plant engineer, and W. V. Emory, assistant bond mill superintendent. W. D. Matheson and A. W. Elcik were appointed superintendent and assistant superintendent of mechanical maintenance.

A graduate of Queen's University in mechanical engineering, Mr. Crozier joined the parent company, Fraser Companies, Ltd., in 1947 at Edmundston, N. B. In 1951, he was named mechanical superintendent of the Fraser mill at Newcastle, N. B., and became plant engineer there the following year. In 1956, he was appointed plant engineer at Madawaska, the position he held until his recent promotion.

Upon graduation from the University of New Brunswick in electrical engineering, Mr. Perkins joined the engineering staff of Fraser Paper at Madawaska in 1952. In 1953 he was named maintenance engineer and in 1955, electrical engineer. In 1958 he became assistant plant engineer and now succeeds Mr. Crozier.

Mr. Shephard graduated from the University of New Brunswick with the degree of B.S. in 1953. He spent the next two years in the United Kingdom on an Athlone Fellowship. In August 1955 he entered the central engineering office of Fraser Companies at Edmundston. Three years later he moved across the St. John River to Madawaska to work in the engineering department of Fraser Paper. He is now assistant plant engineer, succeeding Mr. Perkins.

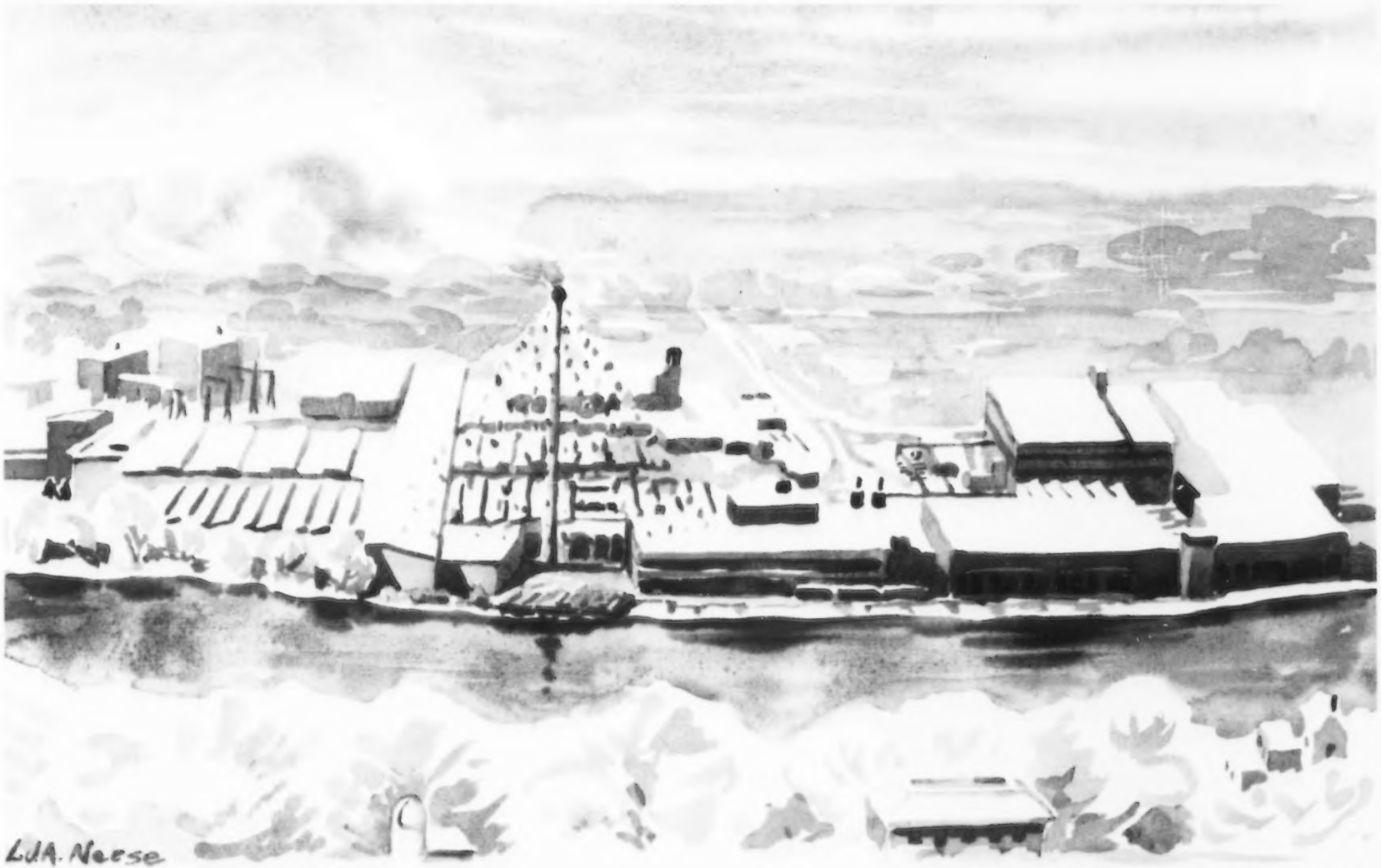
Graduating from McGill University with the degree of B.S. in 1951, Mr. Emory spent a year in the R.C.A.F. where he was a pilot officer. In October 1952 he joined Fraser Companies and spent the next four years in the company's mills at Atholville, Newcastle, and Edmundston, N. B., in various departments including industrial engineering. In August 1956 he became assistant to the bond mill superintendent at Madawaska and now is assistant bond mill superintendent.

A veteran of World War II, Mr. Matheson graduated from the University of New Brunswick with the degree of B.S. (civil engineering) in 1950. He then joined the engineering department of the pulp mill of the parent company, Fraser Companies, Ltd., at Atholville, N. B. In 1953 he was named mechanical superintendent there and four years later moved to Fraser's industrial engineering department at Edmundston, N. B. This year he transferred to the Fraser paper mills at Madawaska where he is now superintendent of mechanical maintenance.

A. W. Elcik attended Gorham State Teachers College were he received his B.S. degree and certificate for teaching industrial arts. He taught this subject at the Madawaska High School until he joined Fraser Paper, Ltd., in 1955 as an apprentice engineer. In 1956 he was appointed assistant to the master mechanic. He now is assistant superintendent of mechanical maintenance.

W. D. Matheson

A. W. Elcik



WATER COLOR PAINTING BY L. J. A. NEESE, 1959

SNOW SCENE: Viewed from wintry skies, Beloit Iron Works sparkles and steams in the crisp Wisconsin air, its foundry flames leaping, its power-house stack trimmed with multicolored lights. The artist's aerial view, from high above the Beloit College campus, shows the plant's 17-acre site on the Rock River, at Beloit, Wisconsin. From here, since 1858, have come world-renowned Beloit paper machines.

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS. U.S.A.

Fiber Products Adds New man to Research Staff

Robert D. McPheters, technical director of the Gould Paper Co., Lyons Falls, N. Y., has resigned to join the staff of Fiber Products Research Center, Inc., Beaver Falls, as a research associate.

Mr. McPheters was graduated from the University of Maine in pulp and paper and chemical engineering. Following graduation, he joined the St. Regis Paper Co. at Buckport, Me., as supervisor of the pulp and paper laboratory.

Robert Massengale

Massengale Joins Bicking Paper Mills

Robert Massengale has been named general superintendent in charge of operations at both mills of Bicking Paper Mills, Downingtown, Pa. He was formerly superintendent of Rocky River Paper Mills, an associated company of Bicking.

NAM Names Parker "Man of the Year"

Cola G. Parker, former president of the American Paper and Pulp Ass'n. (1948-1949) and retired president and chairman of the board of Kimberly-Clark Corp., was elected "Man of the Year" by the National Ass'n. of Manufacturers at its 64th Annual Congress of Industry held in New York City in early December.

C. G. Parker

IP Promotes Four Executives

Promotions of four executives of the Fine Paper and Bleached Board division of International Paper Co. were announced by L. E. Graham, division sales manager.

R. H. Hinman was made manager of the Fine Paper and Bleached Board division's regional office in Chicago and assistant manager, primary grades, of International Paper's Midwestern region, under D. H. Kennedy.

R. E. Chase, Jr., was named manager of publication sales, replacing J. P. Sawyer, who has resigned from the company.

George Stuhr, Jr., was named assistant to the sales manager, in charge of special accounts and assignments.

L. T. Krumm, Jr., was appointed manager of bleached board sales.

All are veterans of IP's sales force and with the exception of Mr. Hinman will make their headquarters in New York.

You'll get exceptionally low "first cost"
You'll use minimum power
You'll need less maintenance
with the
Kalamazoo "Side Hill" Washer

These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and saveralls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
Laboratory size units are available for experimental purposes in determining the proper angle and screen mesh.
Write today for information on capacities and cost estimates.

WOOD TANK DIVISION
Kalamazoo TANK & SILO CO.
1259 HARRISON ST
KALAMAZOO, MICH

Dan Int-Hout, Sr.

R. G. Pender

Int-Hout Retires from Michigan Carton

Dan Int-Hout, Sr., a member of the board of directors and vice president of the Michigan Carton Co., announced his retirement from active duty with the company at a regular board meeting held November 18, 1959. Mr. Int-Hout served the Battle Creek firm as manager of its Chicago sales office for 30 years. He has also been a director of the National Paperboard Ass'n. and the Folding Paper Box Ass'n. Mr. Int-Hout will make his home in Fort Lauderdale, Fla.

At the same board meeting, Robert G. Pender was named as a member of the board of directors and elected vice president, board sales. Louis J. Philipps, chief plant engineer, was elected to the office of vice president, engineering.

The board action with reference to Mr. Pender does not change the present organization of the sales department. Harry Chorpening continues as general sales manager.

L. J. Philipps

Champion Announces Title Changes

Position assignments and title changes for seven men in the engineering manager's office at the Hamilton, Ohio., Champion Paper and Fibre Co. are announced by Leo Geiser vice president and division manager.

James F. Rice has assumed the new title of engineering manager. His old title was division engineer. His assistant, James Hoerner has also had his title changed from assistant division engineer to assistant engineering manager.

Theodore Seeman has been named as administrative assistant to the engineering manager. Howard Adams has assumed the responsibility of superintendent of field maintenance. Oscar Baker is supervisor of the Special Assignments Section and working with him is project engineer, John Gould. Charles Moyers has been named staff assistant for safety and cleanliness in the Engineering department.

Mr. Rice, a veteran Champion employe has been with the engineering department since 1926 and has headed the engineering department since 1949.

Mr. Hoerner began his Champion career in 1931. He has had 22 years of experience in the engineering department. For the last 10 years, he has served Champion as assistant to the division engineer. Mr. Hoerner, a graduate of the University of Cincinnati, holds a mechanical engineering degree.

Mr. Seeman has been with Champion since 1925. His list of duties include storeroom office clerk; head clerk, power plant; technical records clerk; cost analyst, power plant; materials control clerk, power plant; and supervisor, work scheduler.

Mr. Adams, well experienced in Champion's engineering department, will head up the field maintenance department. His new position carries the responsibility of supervising all three zones of the field maintenance section. Mr. Adams has previously served Champion as general foreman of the electrical section.

Mr. Baker will work closely with the engineering manager and handle special assignments. He has been with Champion since 1925, serving as general foreman of the machine shop since 1942. His assistant, Mr. Gould, has previously worked as a project engineer.

Mr. Moyers is a veteran employe of Champion having started there in 1934.

Sutherland Paper Announces Changes in Sales Staff

Sutherland Paper Co. announces the following changes in sale personnel and sales territories:

Charles Weisser, field salesman in the Dallas area since 1954, has been appointed Southwestern regional manager for a newly created Southwestern sales region.

Robert Golden has been appointed field salesman in the Minnesota territory formerly serviced by Harry Unglaub. Mr. Golden has been a member of the Sutherland sales organization since 1956.

OBITUARIES

Harold S. Steward, 61, associated with the Westfield River Paper Co. since 1926 and superintendent of the Lee, Mass., mill for the past 25 years, died on November 12, 1959, of a coronary thrombosis.

ElRoy M. Bell, maintenance superintendent at the Bryant mill of the Allied Paper Corp. in Kalamazoo, died November 16.

Mr. Roy had been with the company since November 1, 1923, and had been the maintenance superintendent for the past six years.

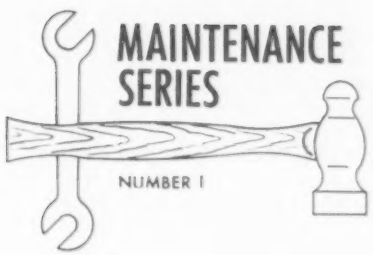
Andrew J. Miller Jr., 52, vice president of the Mead Corp., Chillicothe, Ohio, died in Chillicothe Hospital December 4 after an illness of several months.

Mr. Miller had been with the corporation since 1944 and was vice president in charge of industrial relations.

Gaining Longer Life

A Notable Announcement

Beginning our Most Important and Comprehensive Series of Articles



The field of maintenance offers pulp and paper mills everywhere the greatest opportunity to fight today's rising costs. We have therefore planned a series of more than fifty articles on the maintenance of specific types of equipment, each prepared by a leading manufacturer in that field. All types of equipment basic to pulp and paper mills will be covered. The first article in this series begins on the next page.

Watch for the above symbol in coming issues of PAPER TRADE JOURNAL. It will tag for you another article in our continuing series on the most important topic in our industry today. We will welcome comments from our readers and criticisms of the series. If there is sufficient demand the articles will be reprinted in permanent book form.

Gaining Longer Life From Your Conveyor Belts

Criteria in receiving the maximum use from conveyor belts are proper selection and careful installation, followed by periodic inspection and preventive maintenance. To neglect any one of these can cause a long list of "trouble shooters delights."

Paul W. Freitag, Jr.,
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The rapidly growing pulp and paper industry is now the fifth largest in the United States. As such, it is also a prime user of conveyor belts. Since they represent a large investment and are an important factor in production costs, selection of the proper type and maintenance of conveyor belts are of prime importance to any plant.

The whole process of moving the raw material from woodyard storage to the digester involves conveyor belts. In fact, some mills recognizing the virtues of conveyor belt—higher operating speeds with higher capacity, power savings often as high as 60 to 80 per cent, maintenance and labor savings up to 40 to 60 per cent along with competitive installation cost—have completely belt-conveyorized their entire operation from woodyard to digester.

Pulp and paper mill use of conveyor belts offers a rugged service for the belts. Operating conditions (except chip handling) are usually under fairly wet conditions. There is a constant moisture problem and many transfers with barked and unbarked logs present skid and impact problems. An important consideration before maintenance is the use of a properly designed belt to do a certain job. Proper compounding is essential. Some operations must resist scuffing and action of pickeroons, others must be resistant to the solvent action of the resins contained in some southern pine chips. Physical carcass requirements vary. Some must resist impact with breakers or even floating breakers in the cover. Other belts must be flexible for good troughing with 45 degree idlers. Improperly designed or inferior quality belts will nullify the efforts of the best maintenance program. The first essential to good plant operation is a belt of proper design and quality. Next is the proper installation of conveyor belting. Often serious damage can result, impairing useful belt life, if the belt is mishandled before or during installation. After the belt is in operation, periodic inspection and preventive maintenance will provide the ultimate in belt life.

Some typical belt operations used in a variety of mills are:

Yard Belts—consisting of main log haul, transfer belts, and refuse belts.

Woodroom Feed Belts—usually a continuation of main haul belts and used to distribute wood to barking drums.

Log Sorting Belts—these receive the barked wood and provide a sort-

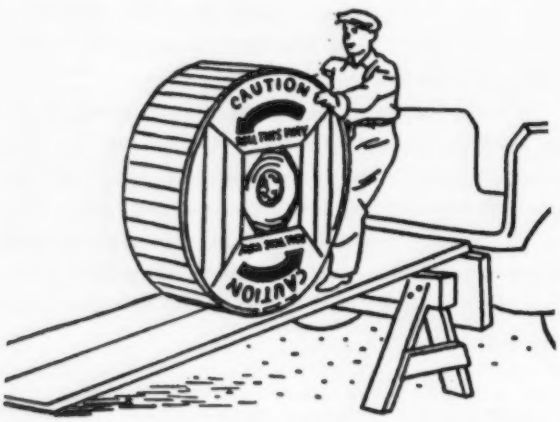


Figure 1: Rolls of conveyor belting should always be rotated in the direction of the arrows stenciled on the crate.

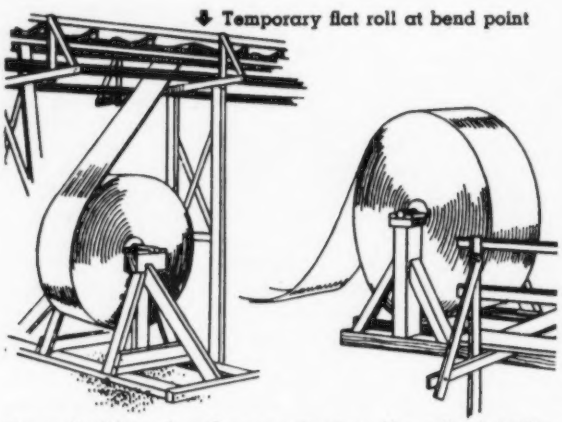


Figure 2: When threading a conveyor, the roll of belting should be mounted on a shaft at the point of installation.

be knocked or shifted to correct a condition where the entire belt runs

2° Maximum
Direction of travel

tion as to bring the belt back to center. Those types which depend on

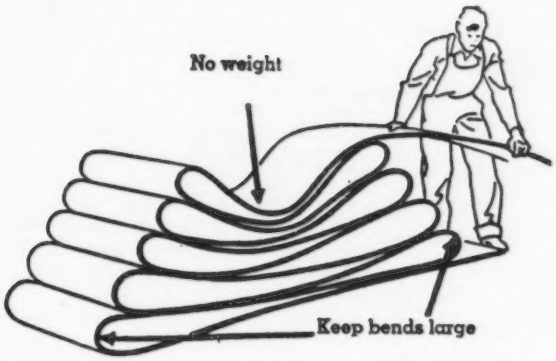


Figure 3: To avoid kinking and prevent breaking of the carcass in lapped belts, loops and bends should be large and no weights should be placed on top.

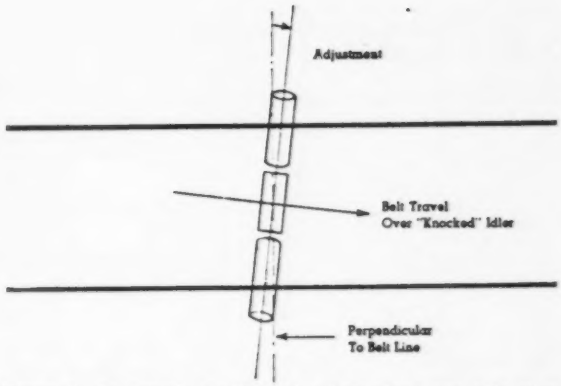


Figure 4: To remedy tracking of a belt along one side of a conveyor, the idler towards which the belt tracks may be knocked ahead.

ing area. Incompletely barked or oversized logs are struck-off.

Recirculation Belts — return partially barked wood to feed belt. They also carry oversized logs to be cut-down.

Wood Storage Distribution Belts—used in groundwood pulp mills to carry barked logs to stock piles or to storage bins near grinder area.

Chipper Feed Belts—carry logs from log sorting belt to chippers.

Chip Belts—carry screened chips to storage area, usually silos.

Digester Feed Belts—carry the chips from storage to digesters.

Broke Belts—used to carry broke to pulper.

Wet Pulp Belts—usually a light colored belt used to carry high density pulp.

Handling and Storage

Conveyor belt rolls are usually packaged in cylindrical wooden crates or burlap covered rolls which can be rolled. All crates and rolls are marked with an arrow showing the direction in which they should be rotated (Figure 1). When rotated in a direction opposite to that of the arrow, the roll tends to loosen and telescope. Crates should never be dropped from freight cars, trucks or other means of conveyance. They should be rolled, placed on skids, or provision should be made for hoisting them.

New belting should be stored upright in factory crates until used. A cool dry room, free from sunlight, steam pipes, oil and corrosive fumes is best. Under no conditions should rolls of belt, especially raw edge or used, be laid flat on the floor. Moisture will shrink any exposed fabric which becomes damp from such storage and the belt is apt to "bow" on one edge. Upright rolls on a dry floor are always the safest.

Installing the Belt

Once the roll of belting has been brought to the point of installation, it should be mounted on a shaft for unrolling and threading on the conveyor (Figure 2). Conveyor belt is usually rolled with the top cover out and this should be considered when positioning the roll for threading.

If the belt is being lapped at the installation site, extreme care should be exercised to see that the loops have large bends to avoid kinking or placing undue strain on the belt (Figure 3), and no weight should ever be placed on the belt while it is in this position.

Belting may be pulled on to the conveyor by either attaching it to one end of the old belt, which has been cut, or in the case of a new installation, by threading a rope or cable around the idlers and pulleys. In either case, the leading end of the old belt or cable can then be attached to a truck, tractor or to the head drive pulley and slowly pulled forward.

The trailing end of the old belt or cable is, of course, fastened to the new belting. To prevent damage it is important that the new belt be attached to the cable with a clamp or other means to distribute the pull evenly over its entire width.

Pulley Lagging

Lagging, or rubber-covering, of the pulleys is recommended for drive pulleys for the following reasons:

1. Improved co-efficient of friction. This permits a belt to be driven by lower slack side (or return side) tension resulting in lower total tension in many cases.

2. Elimination of slippage due to wet conditions if grooved lagging is used.

3. Increased life for pulley and pulley cover of belt.

Idle pulleys, especially those contacting the carrying side of the belt, are often lagged because it is self-cleaning and prevents build-up of material on pulleys. Grooving improves cleaning action on itself and the belt.

Training the Belt

Correct alignment of idlers, pulleys and parallelism of shafts is essential. In troughed conveyors, such as those used in chip or bark handling, head pulleys ordinarily need not be crowned. This crowning is relatively ineffective due to the strong training influence of the troughed idlers. Tail pulleys and others which have a long unsupported span of belt preceeding them may be crowned with benefit because it assists in centering the belt as it passes beneath the loading point. Take-up pulleys should be crowned to take care of any slight misalignment which occurs in the take-up carriage as it shifts position.

Training the belt is a process of adjusting idlers, pulleys and loading conditions in a manner which will correct any tendency of a belt to run other than centrally on the conveyor.

When all portions of the belt run off through part of the conveyor length, the cause is probably in the aligning or leveling of the structure, idlers or pulleys in that region. If one or more parts of the belt run off at all points along the conveyor, the cause is more likely in the belt itself, in the joints or splices of the belt or in the loading of the belt.

Initially, all idlers should be positioned normal to the line of belt travel. Training the belt with the troughing idlers is accomplished in two ways:

1. The feet of the idler stands may

Top head of pulley

Impact of the logs often cause

be knocked or shifted to correct a condition where the entire belt runs to one side along some portion of the conveyor. The belt can be centered by knocking ahead (in the direction of belt travel) the end of the idlers to which the belt runs. This is illustrated in Figure 4. Idlers should be shifted in this manner for some length preceding the area of trouble. Over-shifting should be corrected by moving back the same idlers and not shifting additional idlers in the other direction. Sporadic knocking should not be done. In severe cases, correction should start at one point, preferably right after the drive on the return run, and work slowly in the direction of belt travel. To do this properly, you should start at one point, preferably right after the drive on the return run, and work slowly around in the direction of belt travel.

2. Tilting the troughing idlers forward (not over 2°) in the direction of belt travel produces a good aligning effect (Figure 5). This may be accomplished by placing a steel washer under the rear feet of the idler stand. If the angle of tilt exceeds about 2°, excessive wear may occur on the pulley side of the belt and on the troughing roll itself due to the rotation of these rolls on an axis not at a right angle to the path of belt travel.

This method has an advantage over "knocking idlers" in that it will correct movement of the belt to either side of the idler. Hence, it is useful for training erratic belts. (Note: Some idlers have built in angle, requiring no washers. Such idlers are uni-directional and must be mounted with the tilt in the direction of belt travel).

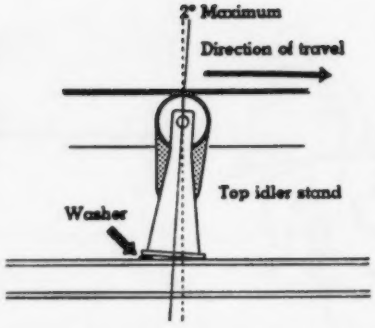


Figure 5: Belts may be trained by tilting the troughing idler ahead with a washer.

Since both of the above are uni-directional adjustments, they are obviously not effective for a reversible belt. In reversible belts, all idlers should be placed and left square, and any corrections required made with self aligning idlers designed for reversing operation.

Return idlers, being flat, provide no self aligning influence as in the case of tilted troughing idlers. However, by shifting their axis with respect to the path of the belt, again the same as in steering an automobile, the return roll can be used to provide a constant corrective effect in one direction.

A further aid to centering the belt as it approaches the tail pulley may be had by slightly advancing and raising the alternate ends of the return rolls nearest the tail pulley, as shown in Figure 6.

Self-aligning idlers, both troughing and return rolls, are usually mounted on a center pivot. An off-center belt causes them to rotate about this center vertical pivot in such a direction as to bring the belt back to center. Those types which depend on pressure from the off-center belt on eccentric discs at the ends of the troughing rolls will work for reversible belts. Those which depend on pressure from the belt edge on a side roller mounted on an arm extended in front of the idler will work for only one direction of belt travel. Self-aligning idlers are more effective if raised slightly above the two adjacent idlers to insure good belt contact.

In general practice, side guide rollers are not recommended for constant use in forcing belts to run straight. They may be used to assist in training the belt and to prevent it from running off the pulleys, damaging itself against the structure. It is usually wise to provide them for protection in an emergency, but if they are allowed to continually touch the belt edge, excessive edge wear will result.

Termination and Transfer

At conveyor terminals, the tail pulley should have a clearance underneath to allow for cleaning of spillage. Overlap should be provided (6 feet to 10 feet) for conveyors aligned in tandem.

The distance between belt runs for bark or chips will be the diameter of head pulley, plus two feet.

To cause the belt to approach the loading point in a troughed position, such as in chip or bark handling, at least one troughing roll should be located between the tail pulley and the chute.

In bringing troughed belting to a flat section as it approaches the head pulley, there are transverse maldistributions of tension tending to raise the tension in the edges of the belt. The magnitude of this edge tension is reduced if the head pulley is placed so that the top of it is on a level with a point half-way up the incline-troughed rolls as illustrated in Figure 7 at "A", and in this case the distance (center line of first troughed idler to center line of head pulley) should not be less than 1.25 times the belt width. If the top of the head pulley and the horizontal roll of the troughing stand are in the same plane, the distance should not be less than 1.75 times the belt width. These figures are reasonable guides for moderately stressed belts of medium width.

Any woodyard should be laid out to permit a straight-line movement of the logs, so as to avoid doubling back and duplication of conveyors. Where log transfer points are necessary, the

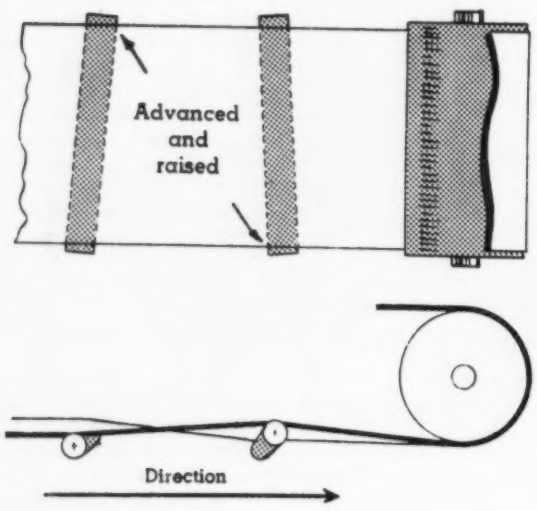


Figure 6: Advancing and raising the alternate ends of return rolls next to the tail pulley will help center the belt.

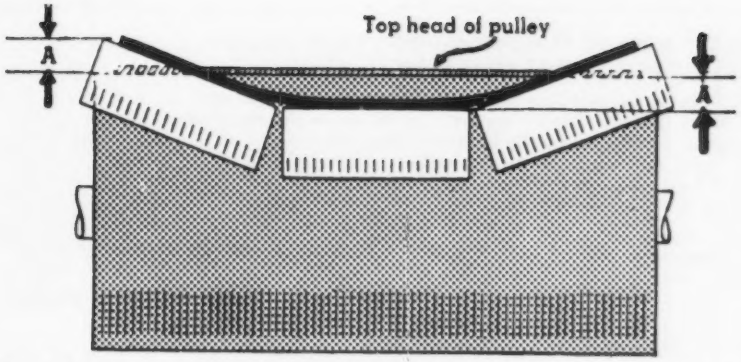


Figure 7: By positioning head pulley as shown at "A", edge tensions may be reduced as the troughed belt begins to flatten at the head pulley.

discharging belt should be placed to one side of the receiving belt and the chute so designed so that logs will be received on the receiving belt from the side. Side loading, as illustrated in Figure 8, permits the logs to roll on the belt without appreciable impact or sliding motion. A small water spray should be used on the chute to reduce friction. This type of transfer point can also be used wherever there are turns in the conveyor system. Optimum transferring through chutes still requires some experimental adjustment in the field.

Loading

Receiving chips off center will cause the belt to move sideways after loading as the center of the load seeks the lowest point in the troughing idlers. This can be corrected by proper chute arrangement if the belt is centered as it enters the loading point.

The loading point of any conveyor is nearly always the life-determining point of the belt. Here the conveyor receives its major abrasion, and practically all of its impact.

The "ideal condition" is to have the material pass from chute to belt at the same speed and direction of travel as the belt, with a minimum amount of impact.

The width of the receiving end of the loading chute for chip handling should be great enough to accept material lying on the extreme edge of the preceding belt or feeder, and its position determined by the trajectory of the material coming into it. For chip or bark handling onto a troughed belt, the discharge chute width should be about two-thirds of the receiving belt width.

Transfer point loading for logs has already been discussed. Loading of logs onto woodyard belts is accomplished by orange peel loaders dumping the load into a traveling hopper or onto a side platform, from where the logs slide onto the belt.

Loading of the log sorting belt is a critical and severe operation. As might be expected the method used plays a very definite role in the anticipated life of a conveyor belt. We would like to see the wood discharged from the barking drums onto a "grizzly" type chute at least 5 feet wide, with a 12-15° angle of decline and a vertical drop from the edge of the chute to the belt, no greater than 6-8 inches. This usually retards the velocity of the logs as they tumble from the barker to cut down on the impact. Loading should be done over semi-pneumatic or cushion type rubber idlers.

Impact of the logs often cause severe cuts. The degree of impact can be lessened to some extent by providing a cushion in the form of rubber-covered disc type or semi-pneumatic idlers (Figure 9) which also tend to prevent material from crowding under the skirt boards. A common type of semi-pneumatic idler being used is the 16 x 4.00 H.D. size using a 1¼ inch shaft. Either the disk type or semi-pneumatic idlers are closely spaced. Idler spacing of the top or carrying run is usually 3-4 feet, while on the return run it is approximately 10-12 feet.

Skirt boards are used with the flat woodyard belt conveyors. These are often made of wood or of ¼-inch steel. They should be inclined away from the belt at the top about 2 inches in 12, to eliminate the possibility of binding the logs. The height can vary from 8-10 inches to 24-30 inches, depending upon operating conditions. There is a difference of opinion as to whether the skirting should be only above the belt, as in conventional conveyor practice, coming to ¾-inch of the belt surface, or extending alongside and beneath the top belt run for 3-4 inches. The latter seems to be a more preferred method since small sticks and slivers of wood can get caught under the skirts when they do not extend below the belt.

Logs to the barking drums are removed by plows set at a 45-degree angle. One quite successful method

Figure 8: The loading point is the life determinant of the conveyor belt. Side loading, like here, does not have appreciable impact or sliding motion.

SHORT GUIDE TO TROUBLESHOOTING FAULTY CONVEYOR BELT PERFORMANCE

Immediately after installation is the hazardous period in the life of a belt. The operator of a conveyor belt should look after it with the same critical eye as the owner of any new expensive equipment. As important as noting the tell-tale rip, wear or cut, is to note its pattern and location with respect to the belt and/or equipment, in order to determine its cause. Listed below are fifty-four agents of nineteen various injuries or malfunction that may be observed in a conveyor belt.

1. COMPLAINT—All portions of conveyor belt running to one side at a given point of conveyor.

   CAUSES
   - A. One or more idlers immediately preceding trouble point not square (at right angles) to longitudinal axis of belt.
   - B. Conveyor frame or structure crooked.
   - C. One or more idler stands not centered under belt.
   - D. Sticking idlers.
   - E. Belt running off on terminal pulley.
   - F. Building-up of material on idlers.
   - G. Structure not being level with belt tending to shift to low side.

2. COMPLAINT—Particular section of conveyor belt running to one side at all points on conveyor.

   CAUSES
   - A. Belt not joined squarely.
   - B. Bowed belt.

3. COMPLAINT—Conveyor belt running to one side for long distance along bed.

   CAUSES
   - A. Load being placed on belt off center.
   - B. Any of list under 1 above.

4. COMPLAINT—Belt being erratic (follows no pattern of performance).

   CAUSES
   - A. Belt being too stiff to train.
   - B. Combination of causes under 1 and 2 with off-center loading.

5. COMPLAINT—Severe wear on pulley side of conveyor belt.

   CAUSES
   - A. Slippage on drive pulley.
   - B. Spillage of material which is ground between belt and pulley, or which builds-up at loading point until belt is dragging.
   - C. Sticking idlers.
   - D. Bolt heads protruding above lagging.
   - E. Excessive tilt to troughing idlers.
   - F. Cover being too thin or of low grade for abrasive material being handled.

6. COMPLAINT—Excessive stretch in conveyor.

   CAUSES
   - A. Tension being too high. (Based on the assumption that adequate take-up is available. Take-up required varies for different types of belt but 2% is an average figure.)

7. COMPLAINT—Belt shrinkage

   CAUSES
   - A. Belt absorbing moisture.

8. COMPLAINT—Lengthwise gouging or stripping of top cover.

   CAUSES
   - A. Skirt board seals being too stiff and pressed against belt.
   - B. Excessive space between belt and skirt seals.
   - C. Metal sides of chute or skirts being too close to belt and gap not increasing in direction of travel.
   - D. Belt spanks down under impact at loading point allowing material to be trapped under skirts.
   - E. Material hanging under back panel of chute.
   - F. Jamming of material in chute.

9. COMPLAINT—Breaks in carcass parallel to belt edge.

   CAUSES
   - A. Impact of lumps falling on belt.

10. COMPLAINT—Transverse breaks at belt edge or in center.

    CAUSES
    - A. Belt edges folding up on structure due to wander or pressing too hard against side guide idlers.
    - B. Mildew.
    - C. Final idler before head pulley being located too close or too high in respect to head pulley.
    - D. Inadequate convex curve radius.
    - E. Material being trapped between belt and pulley.

11. COMPLAINT—Cover blisters or sand blisters.

    CAUSES
    - A. Cover cuts or very small cover punctures allowing fine particles of "sand" to work under cover and cut cover away from carcass.

12. COMPLAINT—Excessive top cover wear, uniform around belt.

    CAUSES
    - A. Dirty, stuck or mis-aligned return rolls.
    - B. Cover quality being too low.
    - C. Pile up of spilled material at tail pulley.
    - D. Side loading, or poor loading, i.e., speed of delivery of material being too slow.
    - E. Excessive sag between idlers causing load to work and shuffle on belt as it passes over idlers.
    - F. Belt being forced to serve as its own feeder, i.e., dragging material out of loading chute.

13. COMPLAINT—Belt raising up off troughing idlers, bowing toward load.

    CAUSES
    - A. Oil or terpines either in material or from outside.

14. COMPLAINT—Cover swells in spots or lines of swelling on pulley side coincident with junction of troughing idler rolls.

    CAUSES
    - A. Over-lubrication of top run idlers.
    - B. Spilled oil or grease.

15. COMPLAINT—Fasteners pulling out.

    CAUSES
    - A. Mildew.
    - B. Wrong type fastener or fasteners not tight.
    - C. Tension too high.

16. COMPLAINT—Transverse breaks in belt immediately behind fasteners.

    CAUSES
    - A. Fastener plates being too long for pulley sizes.

17. COMPLAINT—Lengthwise rips partially or entirely through belt.

    CAUSES
    - A. Any of list under 8 above.
    - B. Belt running off and snagging on structure.
    - C. Puncture by tramp iron at chute.
    - D. Fastener failure.

18. COMPLAINT—Crescent breaks in carcass, or mushy spots where carcass rotted under cover.

    CAUSES
    - A. Mildew.

19. COMPLAINT—Lengthwise rupture of carcass with top cover and possible parts of pulley cover unbroken.

    CAUSES
    - A. Belt running off against structure and folding back on itself as it passes around terminal pulley.
    - B. Joining of breaks due to impact of material on belt.

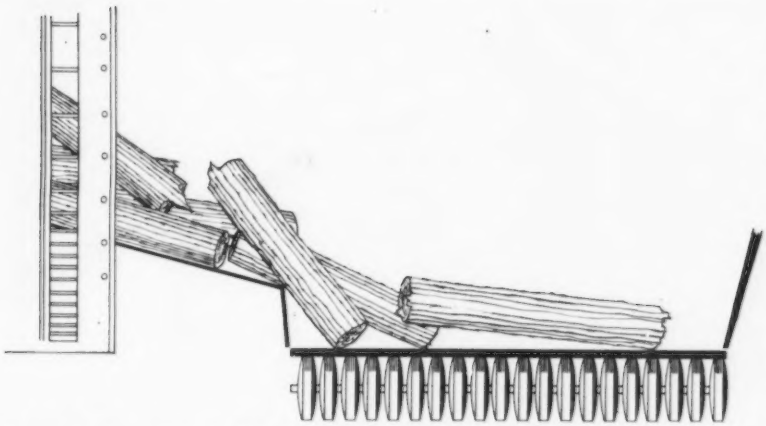


Figure 9: Damage to the belts resulting from the impact of logs can be lessened by cushioning the underside of the belt with closely-spaced idlers.

has been the use of 4- to 8-inch diameter iron pipe.

Cleaning

Special care must be exercised to keep the return rolls and snub pulleys clean, particularly on any log handling belt. Buildup of material on this equipment has a destructive effect upon training, with the result that the belt may run against the structure and damage itself. It is advised wherever possible that return idlers be suspended far enough below the structure so that any misalignment or dirty idlers can be easily seen.

Keeping the return rolls and snubs clean requires that the belt be clean when it enters the return run. Scraping is the most common method of doing this.

Rubber scrapers can be made by clamping rubber slabs ½ to 1-inch thick (not old belting) between two metal or wooden bars. Extend the rubber about twice its thickness beyond the bars and suspend the mechanism with a counterweight to provide pressure against the belt. Replace the rubber when it wears down near the bars. Two or three such scrapers can be used in succession.

The most common steel scraper is a series of diagonally set blades mounted on the end of a leaf spring to maintain pressure against the belt. These will scrape sticky materials which rubber scrapers may ride over.

Washing the belt with a water spray before wiping with a rubber scraper will do a good cleaning job.

Dry materials can be cleaned off the belt with rotating bristle or rubber-vane brushes, driven at fairly high surface speed, usually three to five times the belt speed. They wear rapidly, require considerable maintenance and are likely to fill up solid if used with wet and sticky materials.

It is preferable to clean just after the head pulley and before the snub. An exception to this is that sticky material often requires scraping on the head pulley. This is because a large part of the fine material sticks to the belt and must be scraped into the chute.

The only cleaning required on the pulley side is removal of material, principally small pieces of wood which may fall or bounce onto the return run, and be carried between the belt and tail pulley if not removed. Rubber faced plows immediately in front of the tail pulley are used for this purpose.

They are usually held against the belt by gravity and set at an angle of about 45° with the direction of belt travel.

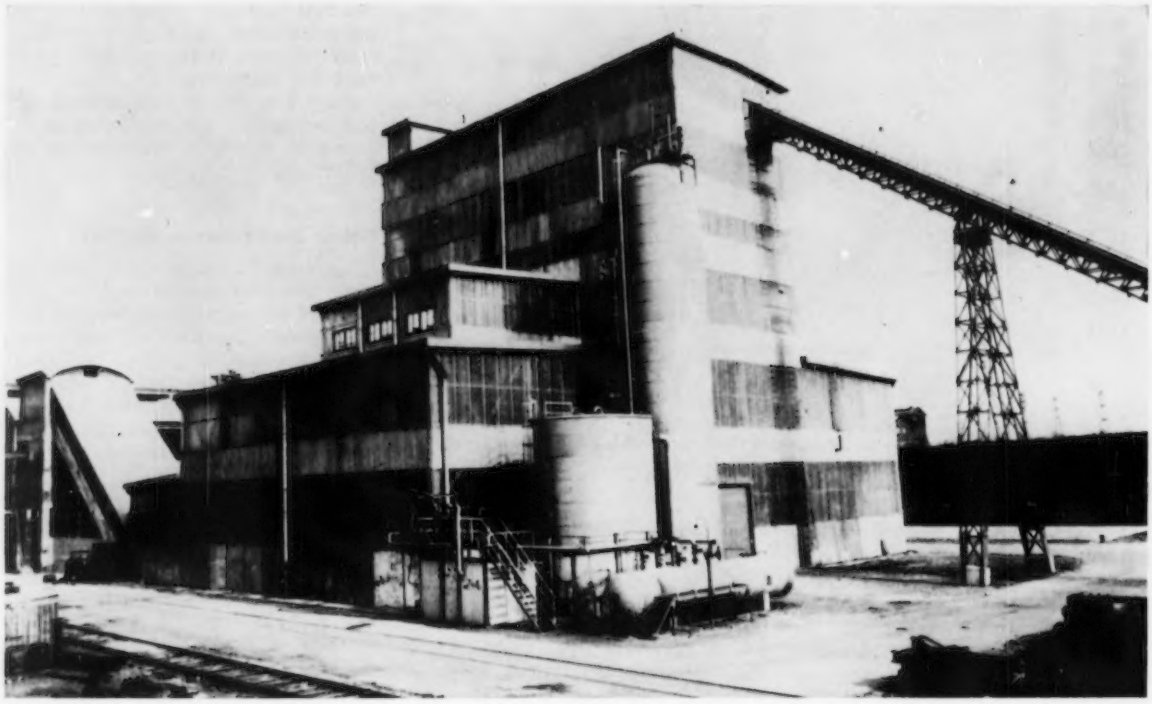
Other Maintenance Factors

Splicing. Vulcanized splices are advised wherever possible and practical and are highly recommended as the safest and ultimately the more economical method of joining belt ends. Vulcanized splices are desirable wherever wet conditions are present, such as woodyard and sorting belts and in any long center belt.

Variable Speed Drives. Often a belt conveyor is used to regulate the feed to the chipper. With the use of a variable speed drive, the amount of wood handled by the conveyor can be kept in step with the capacity of the chipper without frequent stopping and starting of the conveyor.

Lubrication. Since lubrication is also part of good preventive maintenance of any belt conveyor system, a few words should be said on this subject. Definite schedules should be worked up, after checking with the manufacturer of the mechanical equipment. Care also must be taken against over-lubrication as this can also be harmful.

"What . . . packing house broke again!"



Europe's First Chemi-Groundwood Plant Makes Pulp for French Newsprint Mill

A Chemi-groundwood plant, the first in Europe and second anywhere, designed to produce 100 tons of hardwood pulp a day, has been built in France for the Societe F. Beghin, S.A. at Corbehem, France, in the Pas de Calais area by the Stone & Webster Engineering group. The new pulp will be used in the company's newsprint mill at Corbehem.

The coordinated services of Stone & Webster Engineering Corp and its affiliates were used effectively in the design and construction of this Beghin Plant. Process information was prepared in Boston. Engineering and drafting were directed by engineers from Boston and the London office of Stone & Webster Engineering, Ltd., the British affiliate. Purchasing and inspection were done by engineers of the Paris office of Stone & Webster Engineering, S.A. Construction liaison services were provided by engineers from London and assistance on final commissioning by engineers from Boston.

Stone & Webster have built plants for Great Northern Paper Co., Brunswick Pulp and Paper Co., Marathon Paper Mills of Canada, Ltd., Scott Paper Co. and Abitibi Corp.

Saving in Electric Power

The Chemi-groundwood process used in the Beghin plant in Corbehem, France, pressure cooks whole hardwood logs in a neutral sulphite solution, and after cooking they are ground in a conventional pulpwood grinder. Cooking loosens the lignin bond so that wood fibers are pulled off the log without appreciable damage together with the lignin surrounding the fibers so that the total bulk is still present. This results in considerable savings in electric power.

Another advantage reported for Chemi-groundwood is its tear strength which is greater than regular groundwood, thereby it is said, making it possible to produce a satisfactory newsprint from a blended stock of groundwood, Chemi-groundwood and a reduced percentage of sulphite pulp.

Soda ash, sulphur dioxide and caustic soda are received by rail. Soda ash is stored as a monohydrate slurry, sulphur dioxide as a liquid and caustic soda as a 50 per cent solution.

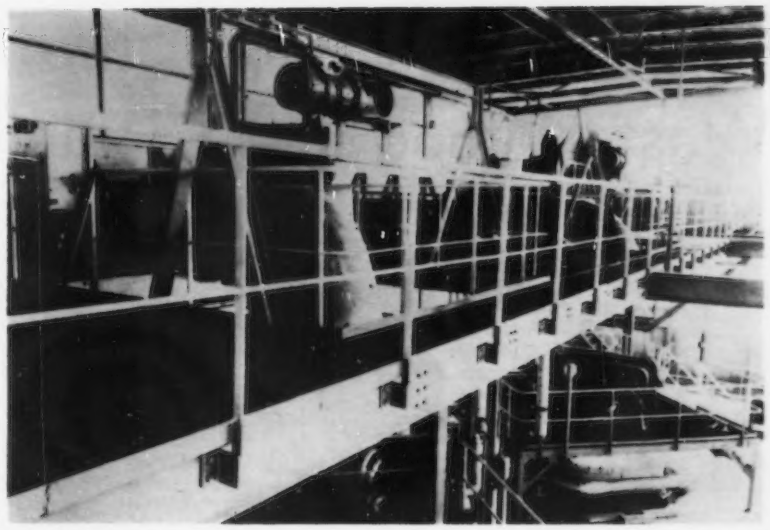
Sulphite solution is made in batches by reacting measured amounts of aqueous soda ash solution with a measured amount of sulphur dioxide. The resultant sulphite solution is stored and used to fortify the cooking liquor after each cook.

Cooking Operation

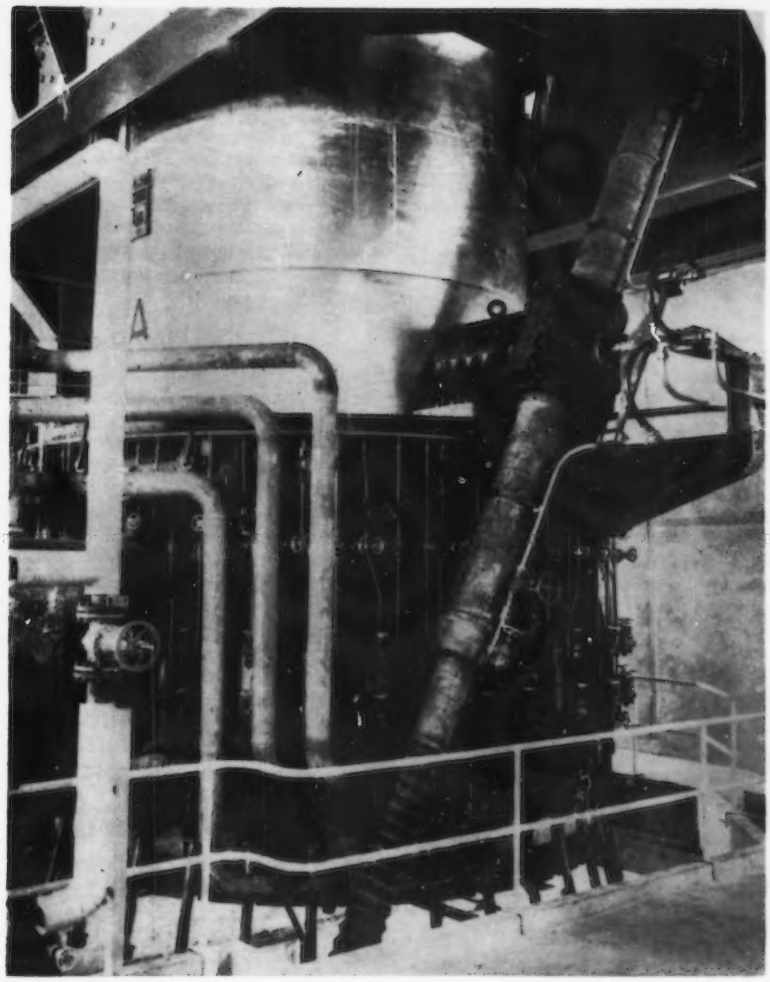
Four-foot-long hardwood logs up to 14 inches in diameter are brought by conveyor from the wood storage area and charged in 21 cord batches to one of two huge vertical digesters 10 feet in diameter and 40 feet high. When filled, the padding water is drained out, the top door is bolted closed and a vacuum is applied to remove the air from the interstices of the wood. After the vacuum is

applied, hot aqueous sulphite solution is circulated under 11 kilograms per square centimeter (approximately 150 pounds per square inch) pressure for 3 to 5 hours, dependent on the species of wood being cooked. At the end of the digesting cycle, the cooking liquor is blown back to an accumulator where, after being fortified with fresh sulphite solution, it is used for the next cook. The logs meanwhile are discharged into a water filled pit by hydraulically opening the large 40 ton bottom door on the digester. The water in the digester pit accomplishes a number of purposes. It absorbs the shock of wood tumbling from the digester, leaches out chemicals from the hot porous logs and cools them so that in the subsequent grinding operation the pulp will not be discolored due to excessive heat.

Logs from the digester pit are transferred by a grapple crane to a conveyor which takes them to the grinders where they are reduced to pulp.



Interior view of operating floor above the digesters in Chemi-groundwood plant at Corbehem, France.



Bottom of one of the two 10-foot-diameter digesters used to chemically treat whole logs.

Modern Hydraulic System

All functions of this plant are controlled from one graphic panel; chemicals are proportioned by preset flow controllers; rate of heating and cooking time is controlled by timers. Process valves are electrically operated and illuminated colored lines on the graphic panel indicate the corresponding pipelines then in use.

A complete and unique hydraulic system has been provided to operate the digester charging door, the bolt locking ring, the 38 bottom cover holding bolts and the 40 ton bottom cover. The system operates at approximately 2,800 pounds per square inch and is complete with pulsation and pressure holding accumulators, thereby permitting intermittent operation of the high pressure hydraulic pumps during the cooking cycle. To open the digester bottom door, the bolt locking ring cylinders are pressurized and the ring shifted to the "open" position; then pressure on the 38 bolt cylinders is reversed, thereby permitting the holding bolts to move downward and out of the path of the digester bottom door, after which pressure on the bottom door cylinders is released thereby permitting the door to open by gravity. To close the door, the three valve system is operated in reverse and pressure is maintained on the holding bolts during the cook cycle. An arrangement of interlocks has also been devised for the safe operation of the system.

How Potlatch Pulps Sawdust and Waste Wood in a Continuous Digester

This report by P.F.I. personnel describes their operation of a Pandia continuous digester in a kraft full chemical cook on wood waste.

Complete utilization without waste of the forested tree is a boast made by Potlatch Forests, Inc., with headquarters at Lewiston, Idaho, a company producing fine lumber and lumber products as well as the pulp and paperboard manufactured there. To qualify for complete utilization, the use of sawdust must be included—something that is ignored in most pulp making operations. Elsewere usually considered a waste product, or occasionally used for fuel, at PFI the sawdust is an important source of papermaking fibers.

High Yield Kraft First

Potlatch has been in pulp and paper manufacture since 1950. In 1955, when its facilities at Lewiston were expanded with the installation of a cylinder paper machine, company officials decided to install a Pandia continuous digester. This Pandia unit was instituted to cook poor quality wood and sawdust to be used as filler stock in the paper machine. The cooked sawdust from the digester is blended into the pulp as filler stock in varying amounts, depending upon the grades of paperboard the machines are running.

Change to Full Kraft

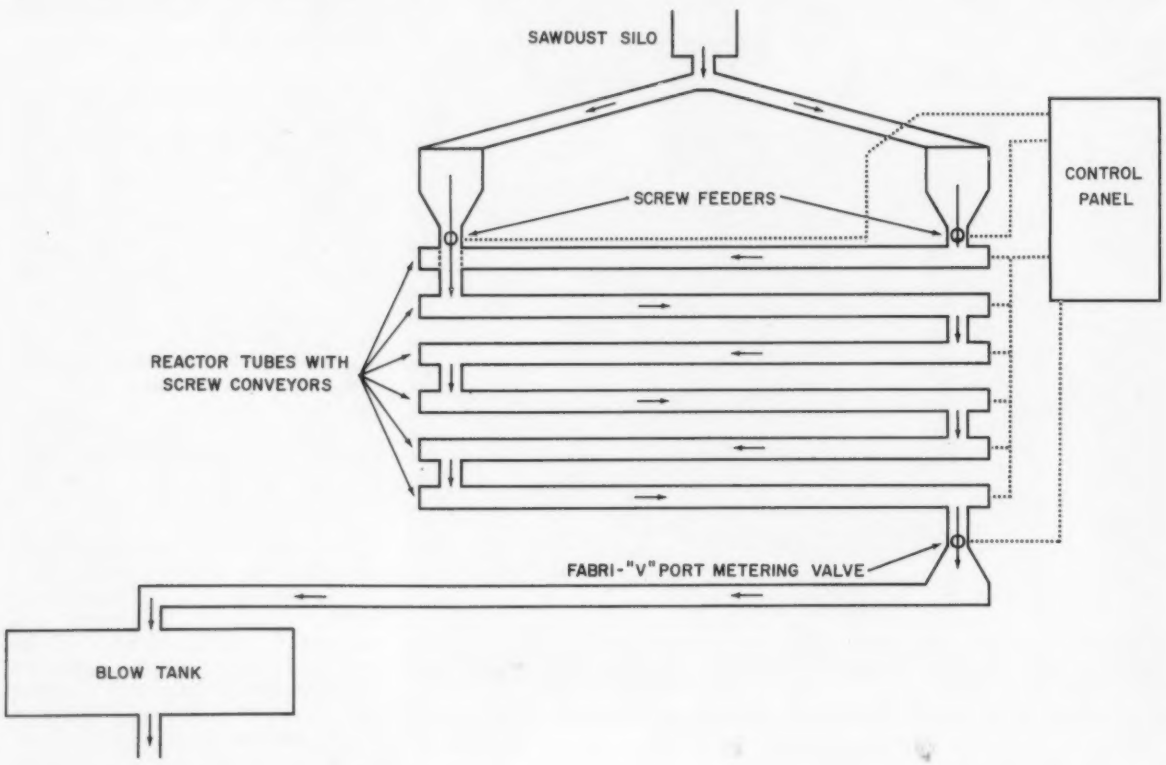
In 1956 the cylinder wet-end was replaced with a fourdrinier, and at this time the Pandia was changed from a semi-kraft, high yield cook to a full kraft cook.

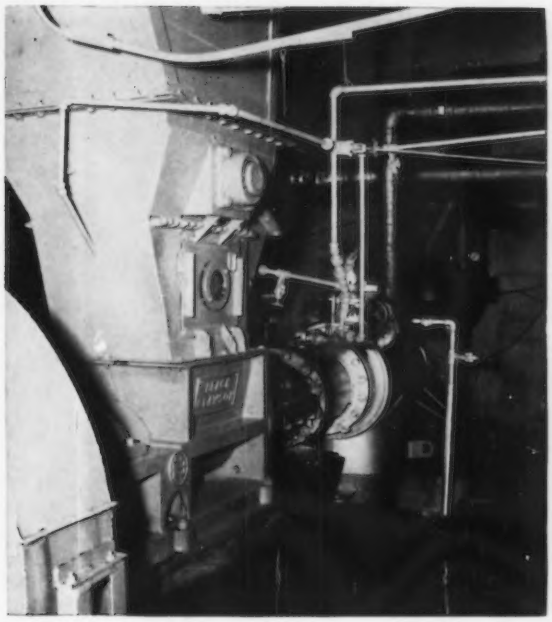
The Pandia unit consists of two 15-inch Pandia screw feeders directly above six 42-inch diameter by 40-foot long screw conveyor reactor tubes, and a standard Pandia impeller discharge.

Sawdust and chips from the storage silos are blown about 400 feet to the steel hoppers atop the screw feeders.

Feeding the Digester

Hot black liquor is introduced into the bottom of the hoppers and is used as a lubricating medium for the feed screws. These screws are manufactured of 316 stainless steel for maximum service time. When worn





▲ Screw feeder shows sawdust flowing at inspection plate.

▼ End view of conveyor reactor tubes.

beyond tolerance, the screws are removed, overlaid and reground in the PFI machine shops. Special shop equipment has been developed by the company maintenance department for rebuilding and machining the feeder screws to very close tolerances.

Cooking Conditions

White and black liquor is induced into the chemical inlet chamber at a ratio of about four to one. A constant temperature of 360 degrees F. and saturated steam pressure of 140 p.s.i. is maintained throughout the digester.

The number one feeder connects to the second digesting tube, and the number two feeder to the first tube. The chamber screws are run at decreasing speeds from top to bottom to obtain maximum cooking time. Average time from introduction into the feeder through cooking process and ejection into the blow tank is 42 minutes. Production is approximately 200 tons per day.

◄ Fabri - "V" - port metering valve at impeller discharge.

Special Blow Valve

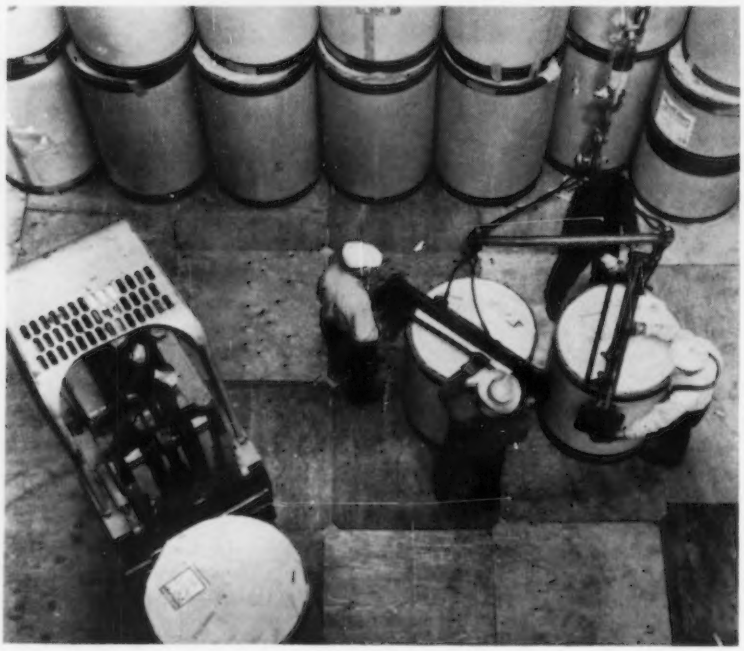
The standard orifice valve on the exhaust impeller has been removed and a six inch air-operated Fabri-"V"-port metering valve has been installed in its place. This is controlled from the operator's panel board and permits the operator to open the valve and allow any tramp metal or other foreign objects to be blown through. Prior to installation of this valve, some plugging was reported.

Sawdust is at present being used in both feeders, but satisfactory results have been obtained using sawdust in one feeder and chips in the other. Also fines from the chip screens and shavings from the sawmill planer are mixed with the sawmill sawdust to make maximum usage of all possible sawmill wastes in producing high quality, easy bleaching pulp. Here in the Pandia digester, as well as in the conventional kraft operation with batch digesters, seven species of wood are utilized—Idaho white pine, ponderosa pine, white fir, douglas fir, larch, cedar and spruce.

View through hatch shows a Hyster lift truck at work unloading newsprint rolls in hold of a ship. Tighter stowage is one benefit of this type of handling.

Shipboard Handling of Paper Rolls Speeded by Lift Trucks

Lift trucks working within the holds of ships to handle newsprint rolls are credited with reducing cargo damage and speeding loading and unloading. Specially outfitted Hyster Challenger 30 lift trucks owned by Star Terminal Co., Inc., San Francisco, do the job. The lift trucks are equipped with revolving paper roll grab clamps, and have light counterweights to bring them within capacity of ship's tackle, for lifting in and out of holds. With the light counterweights, the lift trucks have a 2,000-pound capacity. Other special equipment includes lifting eyes and 12-hour gas tanks.



Longshoremen attach head clamps to pair of newsprint rolls ready to be hoisted out of hold as lift truck brings another roll into position.

For discharging, the hatch is opened and rolls in the square of the hatch are lifted out two at a time with ship's tackle, using head clamps or slings. When the square is cleared, a lift truck is lowered into the hold to take down tiers of rolls under the coaming and carry them to the hook. As more space is cleared, another truck is lowered so two gangs can work each hatch at the same time.

This method of handling newsprint aboard ship allows nearly all rolls to be stacked on end, avoiding damage to ends and edges and eliminating flat cores resulting from "cordwood" stacking. A similar handling technique is used for loading newsprint, although the procedure is reversed.

Mechanized handling aboard ship also speeds loading and unloading, assuring sailing schedules; attains tighter stowage, and provides a consistent rate of stowing and discharging to keep the ship's gear moving. Gangs can maintain fairly uniform hourly production throughout the day, as the machines do not tire out.

PJT NEWS OF SUPPLIERS

Lunkenheimer Co. of Cincinnati, Ohio, one of the nation's oldest and largest manufacturers of bronze, iron and steel valves and engineering devices has named Richard A. McDade sales representative in Jacksonville, Fla.

A native of Lima, Ohio, Mr. McDade attended Kenyon College. He has an extensive background in industrial sales and sales promotion in the Ohio area.

Availability of Mr. McDade in the Jacksonville area will be a valuable addition to the valve application engineering and sales staff of the Lunkenheimer Co., and will provide on-the-spot assistance to the company's distributors.

R. A. McDade

W. E. Anderson

Scott Testers, Inc., has appointed Walter E. Anderson sales engineer, according to a recent announcement by David C. Scott, Jr., president of this firm which manufactures physical testing equipment for textiles, paper, plastics, wire, leather and other basic industries. In his new position, Mr. Anderson will be responsible for sales of Scott testers throughout the continental United States.

Mr. Anderson was previously associated in a sales capacity with the Thomas & Betts Co. and the Minnesota Mining & Manufacturing Co., covering the New England area.

Harbison-Walker Refractories Co. announces the promotion of H. A. Bednarski to assistant manager, basic sales, hearth materials, and K. E. Hansen to assistant manager, basic sales. Both men will continue to work out of the Pittsburgh sales department offices where they report to F. P. Shonkwiler, manager, basic sales.

Mr. Bednarski received his open hearth experience while working at United States Steel Corp.'s Chicago South Works. He joined Harbison-Walker sales department in 1956.

Mr. Hansen has been associated with Harbison-Walker since 1952. His previous assignments have been in the research and technical sales departments. He is a member of the New York district sales staff.

Cellulose Development Corp., Ltd., reports a capital reorganization. For many years the company has been developing the soda-chlorine or Pomilio process for the pulping of bagasse, esparto and straw and there are now 30 mills in 15 countries using this process.

To enable continuous digestion by conventional processes to be offered, the company acquired from the Swedish firm Kamyr world rights of its continuous digestion tower for use on agricultural residues.

Recently the company has made a working arrangement with Millspaugh Wimpey, Ltd., to enable complete mills to be offered including buildings and all civil engineering work.

For many years the company has been controlled by Celdecor, Ltd., a minority interest having been held by Sindacato Cellulosa Pomilio, S.p.A. of Rome, whose president, Umberto Pomilio, is the original inventor.

In order to facilitate the consolidation of all the interests referred to, Celdecor, Ltd., has now relinquished control and the shares are held in four equal proportions by Celdecor, Ltd., Sindacato Cellulosa Pomilio, S.p.A., Aktiebolaget Kamyr and Millspaugh Wimpey, Ltd.

As a consequence of this reorganization, Colonel W. Nash, the previous chairman, has retired from the board and the chairmanship has been taken over by Major-General W. M. Broomhall who remains managing director.

Resisto Chemical, Inc., of Wilmington, Del., has acquired Dri-Dux, Inc. Resisto will manufacture and market Dri-Dux plastic coatings. Dri-Dux was established in 1940.

This line of coatings is formulated from resin and rubber latex bases, which include clear and pigmented barrier coatings that can be overprinted and glued. Products include corrosion resistant materials, release coatings for stick materials, including camelback rubber and tar, abrasive resistant coatings, waterproofing compounds, inside and outside coatings for steel, fiber, cardboard, fabric and paper, mark-out ink for previous printed surfaces, barrier coatings for oil and grease, and varnishes for high gloss problems.

In acquiring these products, William J. Barrentine, president, stated that the line broadens Resisto's present production, which includes a wide range of low density materials for thermal and corrosion resistant problems.

Manufacturing and sales will operate under the identification of Dri-Dux Division of Resisto Chemical, and national distribution will be handled by and under the sales force of the parent company. Additional acquisitions are contemplated.

W. J. Barrentine

T. J. Henry

Bolton-Emerson announces that Thomas J. Henry has joined the sales engineering staff of John W. Bolton & Sons, Inc., and The Emerson Manufacturing Co., Division. He will cover the territory including Pennsylvania, New Jersey, and Delaware.

After studying mechanical engineering at Tri State Engineering School in Angola, Ind., Mr. Henry was sales engineer for the Curtis Mfg. Co., St. Louis, manufacturer of hydraulic and pneumatic equipment.

Before joining Bolton-Emerson, Mr. Henry was a sales engineer for the Mount Hope Machinery Co. calling on paper mills and converting plants. After a period of training, he will be located in the Philadelphia area.

The Orr Felt & Blanket Co. announces that Daniel J. Walsh, Jr., whose home address is 54 Buckman Drive, Lexington, Mass., has been added to its felt sales service staff. Joe Waters and Mr. Walsh will divide the New England territory. Mr. Walsh has spent his working life in the paper field.

Los Angeles and the San Francisco

Prices of Fibers

CHAS. T. MAIN, INC.
ENGINEERS
PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
PULP AND PAPER MILLS
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS
•
BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

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PAPER TRADE JOURNAL is always mailed on Friday at East Stroudsburg, Pa. If you feel that there is undue delay in receiving your copies, we suggest that you write to your local postmaster with a copy to S. E. Marsh, assistant postmaster at East Stroudsburg. If you will also send a copy of your complaint to us this will keep us posted on areas of poor service.

J. O. Ross Engineering Division, Midland-Ross Corp., was host to customers and suppliers November 6 in its new office building at 320 S. School St. in Webers Industrial Park Area of Mt. Prospect, Ill.

The 12,500-sq.-ft. building affords three times as much space as the former office in the Chicago Loop and the site provides space for future building expansion.

Headed by L. G. Janett, vice president, the office serves the territory bounded by Canada, the Gulf of Mexico, the Rockies and the Middle Eastern States.

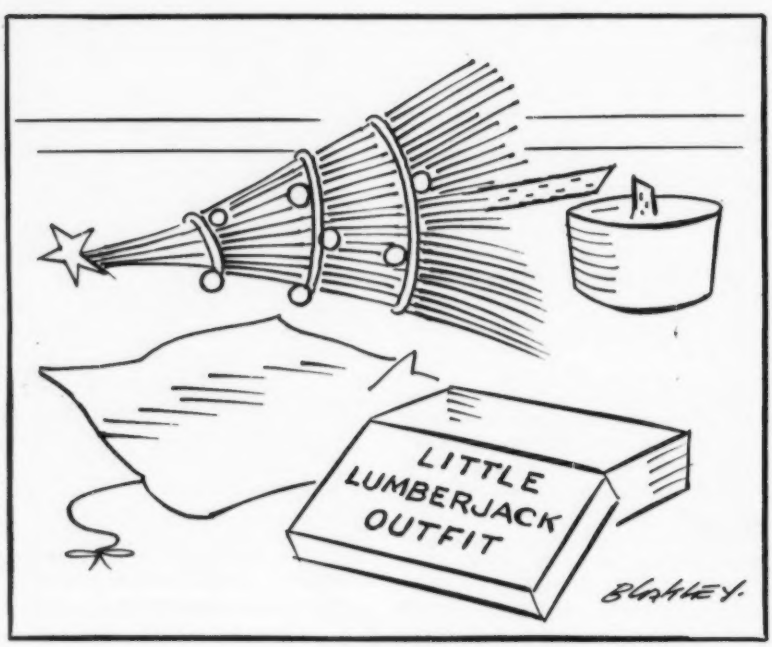
General Dyestuff Co., a sales division of General Aniline & Film Corp., has appointed Carl A. Bergman to the new position of chemical sales manager—Southern region. In his new capacity, Mr. Bergman will direct and coordinate chemical sales in the Charlotte and Chattanooga branches of the company, under C. C. Cayce, Southern regional manager.

Mr. Bergman has been with General Aniline & Film for more than 22 years. Prior to his current promotion, he was assistant branch manager of Antara Chemicals, another sales division of General Aniline & Film. He is a graduate of Pratt Institute of Science and Technology.

Denver Equipment Co. has appointed Walter J. Krstich sales engineer. He will work in the Western sales division covering the 11 western states with his headquarters in Denver.

Mr. Krstich, a native of Akron, Ohio, is a graduate of the U. S. Naval Academy at Annapolis. Before joining Denver Equipment he was with the Goodyear Rubber Co. in Akron, St. Marys, Ohio, and Denver as a field representative in the industrial products division for 8 years.

ESCO now distributes the Hills-McCanna line of diaphragm valves in California with stocks located in



duced and the facility will be sup-

Los Angeles and the San Francisco bay area. With the addition of California, ESCO's distributorship extends to all of the 13 western states.

The distributorship was expanded in 1958 to include Colorado, Arizona, Wyoming and the eastern part of Montana. ESCO has been the distributor of this line in Oregon and Washington for the past four years.

Hills-McCanna was the first manufacturer of The Saunders Patent Diaphragm valve in 1931. These valves will handle corrosion and abrasion flow problems ranging from air to slurry conveying.

R. W. Munson

M. M. Young

The New Jersey Zinc Co. has appointed Robert W. Munson assistant eastern district sales manager. His principal assignment will be the supervision of the company's pigment sales activities in the Southern area of the Eastern District.

Mr. Munson started his employment with the company in 1947 as a salesman in the Los Angeles office. He was made district sales manager for the West Coast in 1952. The following year he was transferred to the pigment sales organization in New York. He is an alumnus of the University of California.

Dietz Machine Works, Inc., of Philadelphia has been purchased by a group headed by Michael M. Young. Dietz has been an important supplier of machinery for the paper converting industry for 60 years.

Mr. Young, new president of Dietz Machine Works, Inc., was one of the founders and a vice president of Wabash Manufacturing Co., Baltimore, for the last 12 years. Prior to that time he served as chief production engineer for Bendix Aviation Corp.

Reginald Couzens, who has been with Dietz for a number of years, has been appointed vice president in charge of engineering. Mr. Couzens had previously been associated with Scott Paper Co. as a machine design engineer.

Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§$80.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	§47.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED DECEMBER 1

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$7.50/ —	8.15/7.75
3	$7.00/6.00	$8.00/7.00	7.00/6.50	7.75/7.60
4	6.00/5.25	6.25/5.75	6.25/5.25	7.00/6.50
5	5.25/4.75	5.00/4.75	4.75/4.50	6.25/5.85
6	4.75/3.50	4.60/4.25	4.00/3.25	5.25/3.25
7	3.50/2.50	3.50/2.75	3.00/2.50	3.25/2.90

WASTE PAPER MARKET

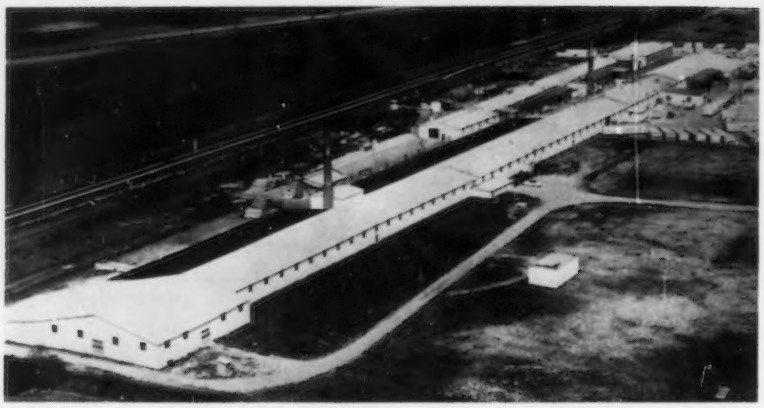
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Dec. 7	Dec. 7	Dec.	Dec.
No. 1 Mixed Paper	$ 10.00/ 12.00	12.00/ 14.00	9.00/ —	13.00/ 14.00
No. 1 News	14.00/ 15.00	14.00/ 15.00	16.00/ —	16.00/ 15.00
Overissue News (Lg. size)	13.00/ 15.00	13.00/ 15.00	21.00/ —	19.00/ 20.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	21.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	36.00/ —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	65.00/ 70.00	53.50/ 60.00	45.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	42.50/ 45.00
Manila Tab. Cards	75.00/77.50	75.00/77.50	75.00/ —	70.00/ —
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	45.00/ —	31.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	55.00/ —	55.00/ —
Mixed Book & Mag.†	22.00/ 25.00	— / —	15.00/ —	— / —
No. 1 Books‡	22.00/ 24.50	17.00/ 19.00	32.50/ —	17.50/ 19.50

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

PJT NEWS OF CONVERTERS



CONSOLIDATED PAPER CO.'S new branch plant at Bremen, Ind. (shown above), will be ready for operation early in January, 1960. A complete corrugator with all box-making equipment will be installed.

General Paper Moves To New Building

General Paper Corp. of Texas, direct mill distributor of fine printing paper in rolls, has occupied its new headquarters building in Brook Hollow Industrial District in Dallas. The 16,000-square-foot office and warehouse building has storage space for 140 rail cars of fine paper rolls weighing from 100 to 2,000 pounds each. General Paper handles 67 different kinds of paper and 120 types of business form bond.

Robert N. Dahl, president of General Paper, said the firm serves about half the United States, an area extending from Florida on the east to Colorado on the west.

Olin Mathieson Starts Up New Plant in Dallas

Start-up of a new corrugated container sheet plant in Dallas was announced by Kent Anderson, product manager, containers, for Olin Mathieson Chemical Corp.'s packaging division.

The plant contains approximately 45,000 square feet of floor space and has a production capacity of five million square feet of corrugated containers per month. Stewart M. Norris will manage the new Dallas operation.

This new facility will provide Olin customers in the Dallas-Fort Worth area with rapid, on-time service. A wide range of containers will be produced and the facility will be supported by basic paperboard production from the packaging division's pulp and paper mill in West Monroe, La.

Melrose Paper To Expand

Melrose Paper Co., Philadelphia converter, has announced an expansion program that will increase production to 50 tons daily. The new machines will be in operation during early 1960. Melrose Paper sells job lots of fine and coarse paper and paperboard to jobbers, converters, and box makers all over the country.

Diamond Hoosier Advances Downing to President

Norris J. Downing has been named president of Diamond Hoosier Containers, Inc., manufacturer of corrugated containers in Dayton and New Castle, Ind.

Mr. Downing succeeds J. C. Behringer, who has resigned as head of the Diamond National subsidiary.

The new president has been executive vice president of Hoosier Containers since December 1, 1956. Previously, he was vice president of Inland Containers Corp., Indianapolis.

Mackay Purchases Paypar Products

Purchase of Paypar Products Co., 9 E. 16th St., Minneapolis, Minn., by Harvey B. Mackay of St. Louis Park has been announced.

Paypar was founded in 1943 as a partnership of Philip Mushkatin and Irving Zalk, both of St. Paul. After Mr. Zalk's death, Mr. Mushkatin purchased Mr. Zalk's interest and continued the business as a sole ownership until his death last August.

The company manufactures envelopes and allied products.

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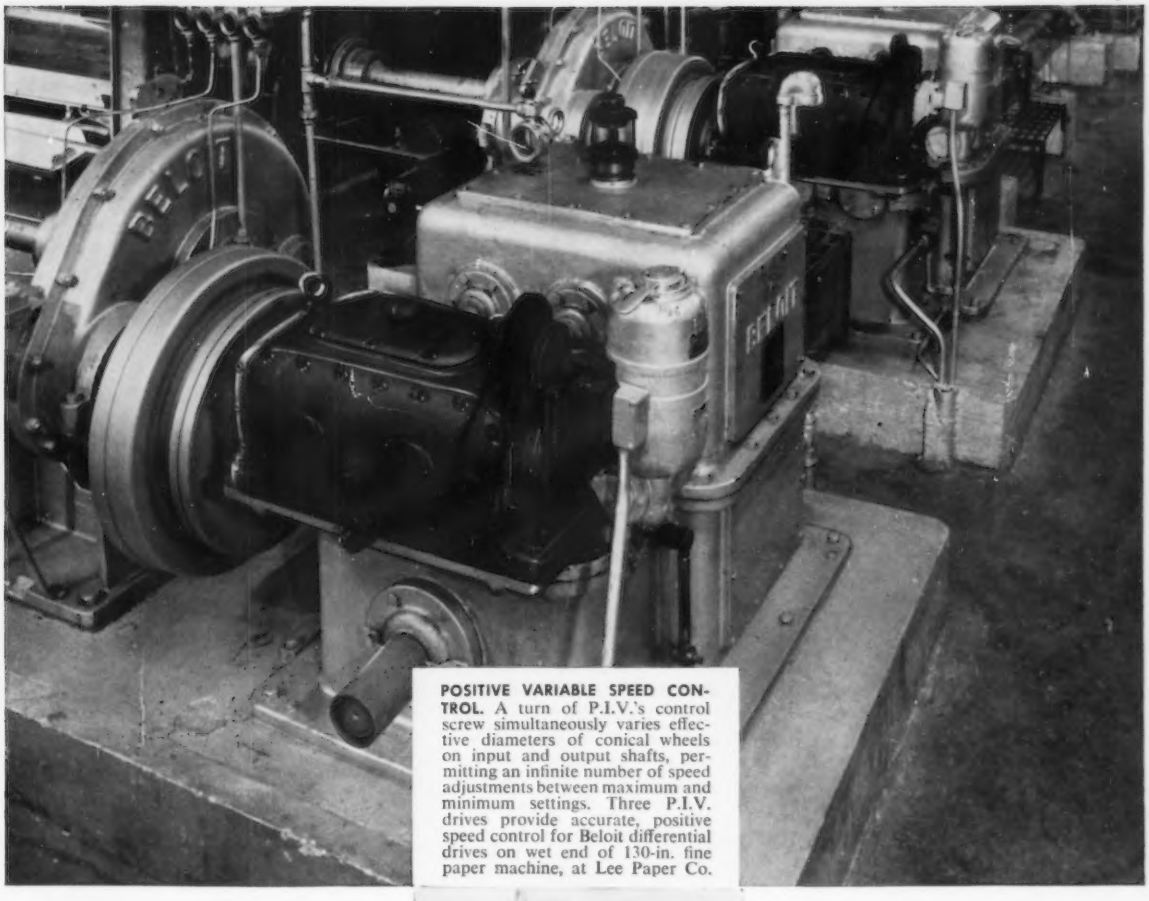
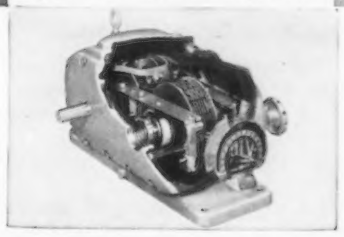


POSITIVE VARIABLE SPEED CONTROL. A turn of P.I.V.'s control screw simultaneously varies effective diameters of conical wheels on input and output shafts, permitting an infinite number of speed adjustments between maximum and minimum settings. Three P.I.V. drives provide accurate, positive speed control for Beloit differential drives on wet end of 130-in. fine paper machine, at Lee Paper Co.

Unique in operation . . .



unmatched in accuracy . . .

For stepless, slipless speed changing

. . . there's nothing like P.I.V.

Where operations requiring variable speed control can't tolerate slip—no other mechanical drive is equipped for the job like Link-Belt P.I.V. With its all-metal, self-tooth-forming chain that maintains positive grip with radially grooved wheels, it offers a degree of accuracy . . . a level of efficiency—unique in the field. Speeds can be varied in an instant, regardless of load, without interrupting the driven machine. And P.I.V.'s all-metal construction ignores atmospheric conditions.

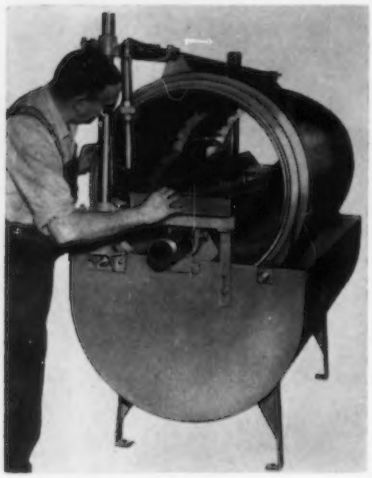
The complete story is contained in Book 2274. Your nearest Link-Belt office or authorized stock-carrying distributor will supply a copy.

P.I.V. LINK-BELT VARIABLE SPEED DRIVES

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 15,055

Motorized Micrometer

PJT NEW EQUIPMENT & SUPPLIES



Self Cleaning Strainer Introduced

The Sinclair Co. has recently introduced a self-cleaning strainer. Chemicals or solvents can be strained at a rate up to 100 gallons per minute, notes the company. The liquid is first passed through a fine rotating wire cloth screen to eliminate all foreign matter. The screen is then automatically cleaned by shower nozzles. Waste is deposited in a refuse tray and drained off into sewage system. Feature of this strainer is that it is especially designed to make dilution of the liquid improbable. Constructed of stainless steel, bronze castings and red brass piping, or entirely of stainless steel, this strainer is available in two sizes, 40 g.p.m. size and the 100 g.p.m. size. For additional information write: The Sinclair Co., 60 Appleton St., Holyoke, Mass.

Battery Chargers For Industrial Trucks

Three new single-circuit battery chargers for charging batteries of high ampere-hour capacity have just been announced. They are rated 7½, 10 and 15 kilowatt, and each one is an integral unit, is automatic in operation and is designed to charge lead-acid or nickel-iron-alkaline industrial truck batteries.

For more information, write Motor Generator Corp., Troy, Ohio.

New Proportioning Pump For Corrosive Chemicals

A low cost, electrically-driven Chem-O-Feeder for the proportioning of concentrated corrosive chemicals has been announced by B-I-F Industries, Inc. The diaphragm-type pump, Model 1331 Proportioneers Chem-O-Feeder will meter such chemicals as 66° Baumé sulphuric acid, sodium hydroxide, etc., and features adjustable stroke length while in motion.

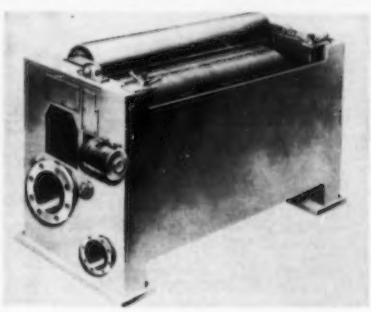
The positive displacement pump is installed, either floor, shelf or wall-mounted, and takes suction directly from the shipping container. Range is over 4 to 1 with capacity up to .7 G.P.H. into discharge pressures up to 100 P.S.I.G. Complete package ready for installation consists of the pump, foot valve, injection nozzle, connecting hoses and instructions.

For additional information write to B-I-F Industries, Inc., 345 Harris Ave., Providence 1, R. I.

Pulp Decker Features Free-Flow Cylinder Mould

The Gravi-Decker, a pulp decker with a free-flow cylinder mould, is being manufactured by Koehring-Waterous Ltd., Brantford, Ont. The Gravi-Decker's cylinder mould has no central shaft, spiders, or winding wires to cause a pileup of loadings; and when cleaning is necessary, it can be accomplished without removing the mould from the vat, it is said.

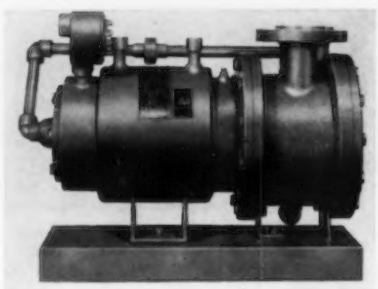
The facing wire is mounted on a corrugated stainless steel drum, eliminating the need for a backing wire. Drainage holes in the flanks of the corrugations provide a free area greater than that of the facing wire, so that the drainage rate of the mould is limited only by that of the facing wire.



The built-in master panel—which controls drive, pick-up roll lifting and lowering, doctor pressure, drive gear shower, and end seal water feeds—can be removed and mounted separately if mill arrangement requires it. The drive motor is mounted on the end frame. All parts of the decker in contact with the stock not made of stainless steel, bronze, or plastic are rubber-covered.

"Canned" Pumps Eliminate Leakage

A new series of two-stage, high-head "canned" pumps has just been introduced by Fostoria Corp. The new product line, known as Chempump Series D, is designed for leakproof pumping at heads up to 600 feet. All of the advantages of canned pumps are retained. Rotor, shaft and impellers form a single rotating assembly. Both rotor and stator are



completely enclosed or "canned" within corrosion-resistant, non-magnetic alloy cylinders. The pumped fluid is allowed to circulate through the motor section and serves to cool the motor and lubricate the bearings. No external lubrication is ever required.

Since pump and motor are built as a single unit, there are no stuffing boxes or mechanical seals. Leakage is completely eliminated. Thus, operating costs are greatly reduced. Low temperature Series D Chempumps for operation under 400°F. are equipped with water jackets around the stator for cooling if required. High temperature models for the handling of fluids over 400°F. are equipped with external heat exchangers. The pumps are available for temperatures up to 850°F. and system pressures up to 3500 p.s.i. They can be modified for vacuum or slurry service. For more information, write Chempump Division, Fostoria Corp., P. O. Box 35-1, Huntingdon Valley, Pa.

Motorized Micrometer Gives Greater Accuracy

More precise thickness measurements of sheet materials are now possible it is claimed by Testing Ma-

chines, Inc. It is achieved by refinements to their manual dead weight micrometers.

Until now there has always been the question of a spring operated instrument changing its measuring pressure. The measuring pressure of screw type micrometers is generally not known. With a hand operated dead weight dial micrometer, the pressure is unchanging but the operator can affect the reading by his method of applying the dead weight load. The new TMI motorized dead weight precision micrometer eliminates all these variables. It is not hand operated and the readings are reproducible and will correlate from operator to operator and from plant to plant.

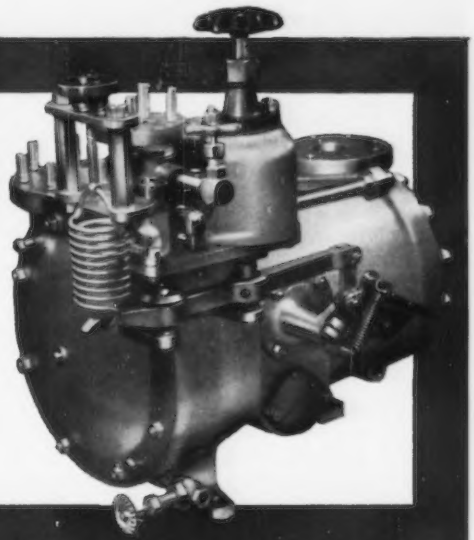
The new motorized micrometer assures that the dead weight measuring load is always applied in the same way and with exactly the same pressure. Measuring anvils are lapped flat stainless steel with the lower anvil adjustable with three lock screws to obtain exact parallelism of the measuring surfaces.

The cam which lowers the dead weight measuring load, loses contact with the load during the dwell period when the measurement is being noted. Thus only the dead weight exerts pressure on the sheet. The operator has two hands free to handle the sheet and write down the readings. Cycling time for each measurement is five seconds but other speeds can be furnished.

When many measurements are to

Complete Pump, Turbine and Controls

COFFIN IND TURBO PUMPS



PACKAGED — integral design of the IND Pump results in a compact, highly efficient unit which mounts impeller and turbine wheel on a short, rigid shaft. The unit is equipped with complete controls for constant or differential pressure regulation.

APPLICATIONS — compact and highly efficient, the Coffin type IND Steam Turbo Pump is designed for General Boiler Feed or any other pumping service where medium volume and high pressure is required.

SPECIFICATIONS-

Capacities	to 180 GPM —	Height 32"
Discharge Pressures	to 350 PSIG —	Width 25"
Liquid Temperatures	to 300°F —	Length 32"

For special installations these ratings may be exceeded.

Coffin Turbo Pump Co.
326 South Dean Street, Englewood, N. J.
Gentlemen: Please send me illustrated booklet further describing the Type "IND" Pump.

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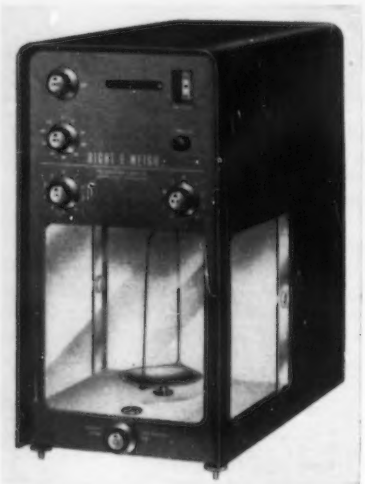
be made, a considerable saving in time is possible with less operator fatigue and less chance for error. Important measurement of compressible sheet materials such as plastics, paper, and paperboard can now be made with full confidence.

A complete brochure covering micrometers is available from Testing Machines, Inc., 72 Jericho Turnpike, Mineola, Long Island, N. Y.



THIS ONE-PAN ANALYTICAL BALANCE, the Right-A-Weigh has been completely redesigned, announces the manufacturer. It incorporates the same basic principles of operation, using the substitution weighing and having built-in weights and projection reading. Improvements include an enlarged weighing chamber; gearless drive for counters; compensated beam; sturdier unitized construction; independent panbrake. Complete details are available from Wm. Ainsworth & Sons, Inc., 2151 Lawrence St., Denver, Colo.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Oct. 31	Nov. 7	Nov. 14	Nov. 21	Nov. 28
1959	97.7r	95.6r	96.2r	96.2r	93.7
	Nov. 1	Nov. 8	Nov. 15	Nov. 22	Nov. 29
1958	91.7	92.3	91.2	91.0	87.7

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2	94.4	95.3	95.6‡	84.6‡	96.0‡	94.7‡	97.3‡	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	90.6	93.7	92.1	95.4	98.5	91.2	86.9	92.6
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Oct. 31	Nov. 7	Nov. 14	Nov. 21	Nov. 28
1959	96	94	95	95	91
	Nov. 1	Nov. 8	Nov. 15	Nov. 22	Nov. 29
1958	95	93	94	94	88

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	89	94	95	94	96	96	83	97	92	97	—	—	—
1958	84	86	87	84	85	86	76	93	90	95	93	77	86

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Nov. 28, 1959	LAST WEEK ENDING Nov. 21, 1959	CUMULATIVE TO DATE Jan. 1 to Nov. 28, 1959, incl.
% Activity	91%	95%	93%
TOTAL	310,853	323,362	14,644,140
Liner	101,592	114,735	5,087,621
Corrugating Material	49,223	51,208	2,241,909
Chip & Filler Board	4,067	4,445	233,964
Total Containerboard	154,882	170,388	7,563,494
Folding	54,009	56,036	2,611,762
Set-Up	9,962	12,503	559,497
Special Food Board	24,115	27,422	1,311,763
Other	67,885	57,010	2,597,624
Total Boxboard	155,971	152,975	7,080,646
Total Orders			
Received	275,752	296,038	
Unfilled End of Week	438,833	469,641	

12 BIG REASONS
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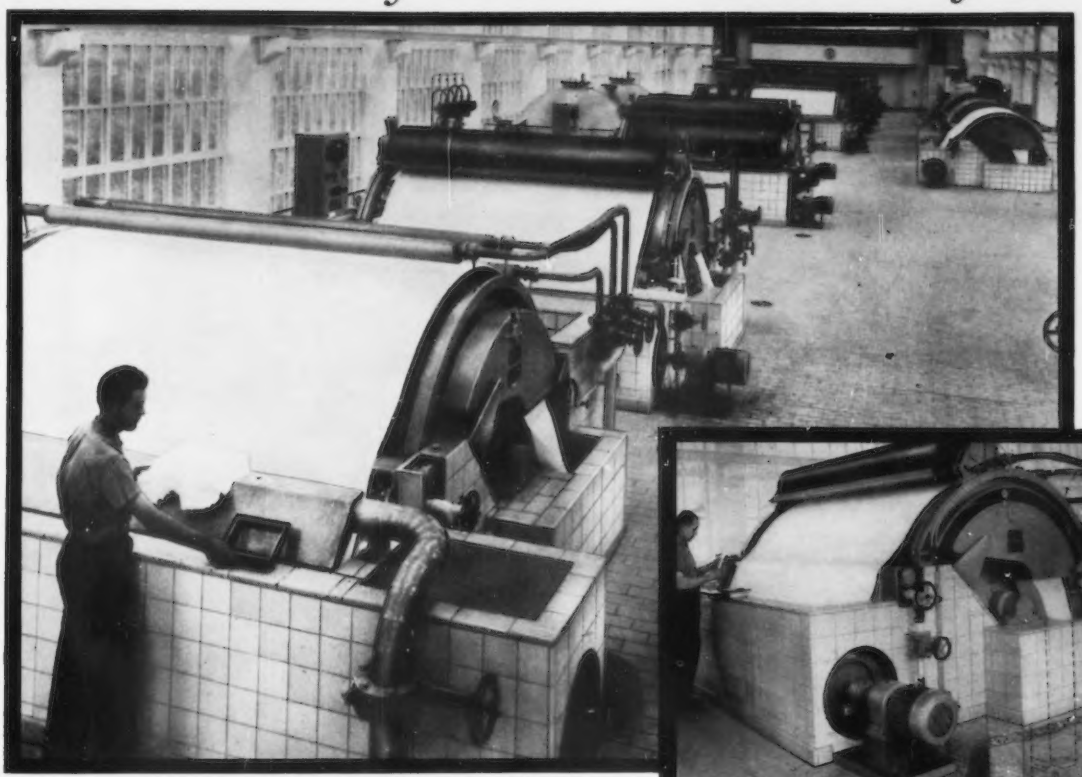

Washer floor showing eight M54s being used as washers and three M54s being used as thickeners

M54 Kamyr vacuum washer with cutaway drawn to show seal box and short drop leg

More than 200 new M54 KAMYR vacuum washers installed since 1954!

Here's why:

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2. Lower power requirements for white water recirculation
3. Lower white water piping costs
4. Excellent sheet formation
5. Uniform washing action
6. Utilizes full indicated vacuum
7. Excellent pick-up
8. Excellent pick-off
9. Less foaming
10. Up to 30% consistencies when equipped with vacuum pump and press rolls
11. Mechanically simple
12. Easily installed

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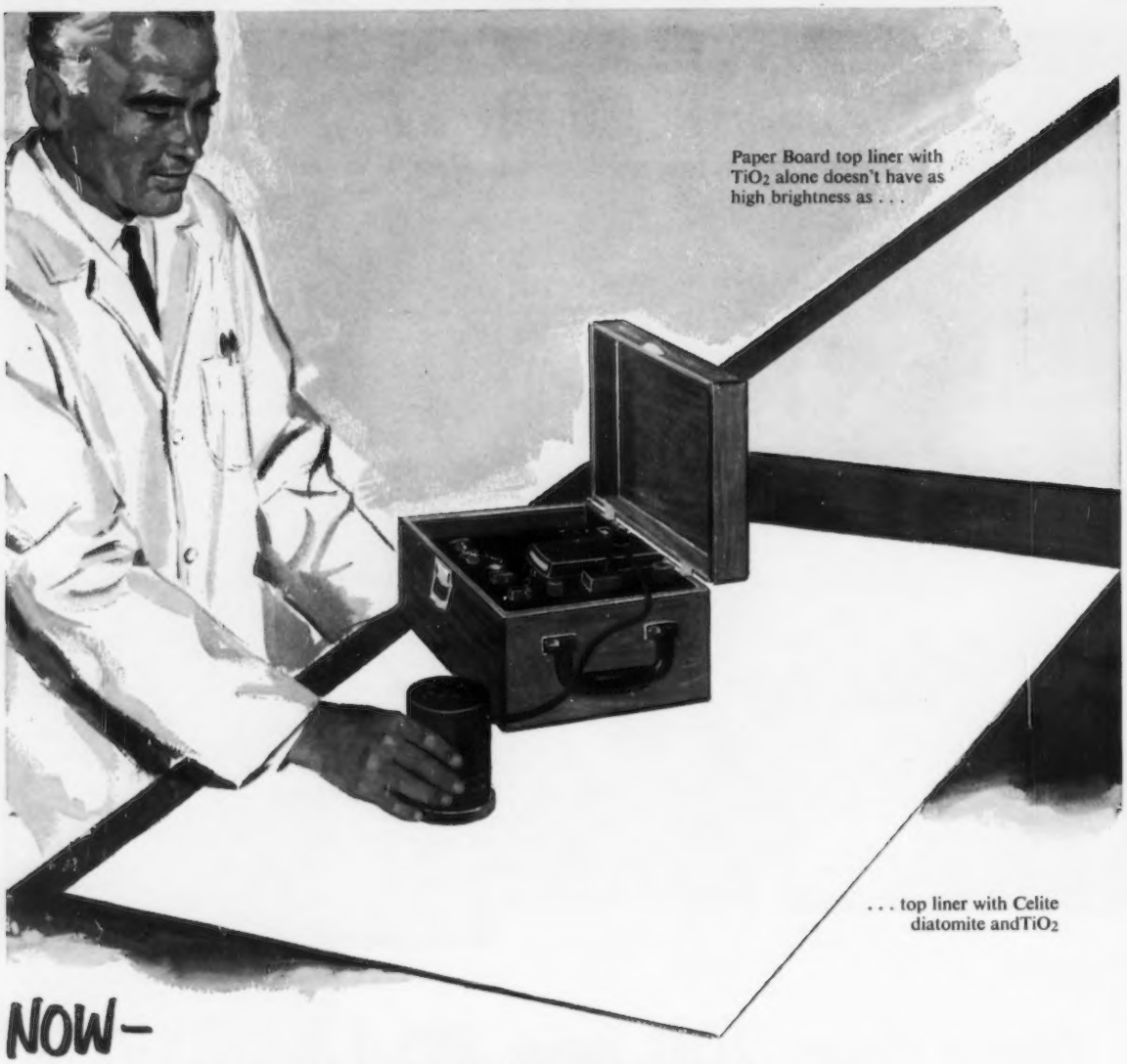

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Use Celite diatomite with 92% brightness

Some grades of low-cost Celite* have an unusually high brightness. Their Tappi rating is 92%. Even when used alone, Celite will increase furnish brightness.

To increase top liner opacity and reduce production costs, you can replace part of the Titanium Dioxide with intrinsically bright, low-cost Celite.

What's more—because of Celite's unique physical characteristics, more TiO_2 is retained in the sheet when the two are used together. This TiO_2 retention results in better dry opacity and lower costs than if TiO_2 is used alone.

The unique structure of individual Celite particles produces a porous, fluffy powder that scatters light and imparts opacity. Celite has a very low loose weight density and good suspension characteristics—improves formation, drainage and drying.

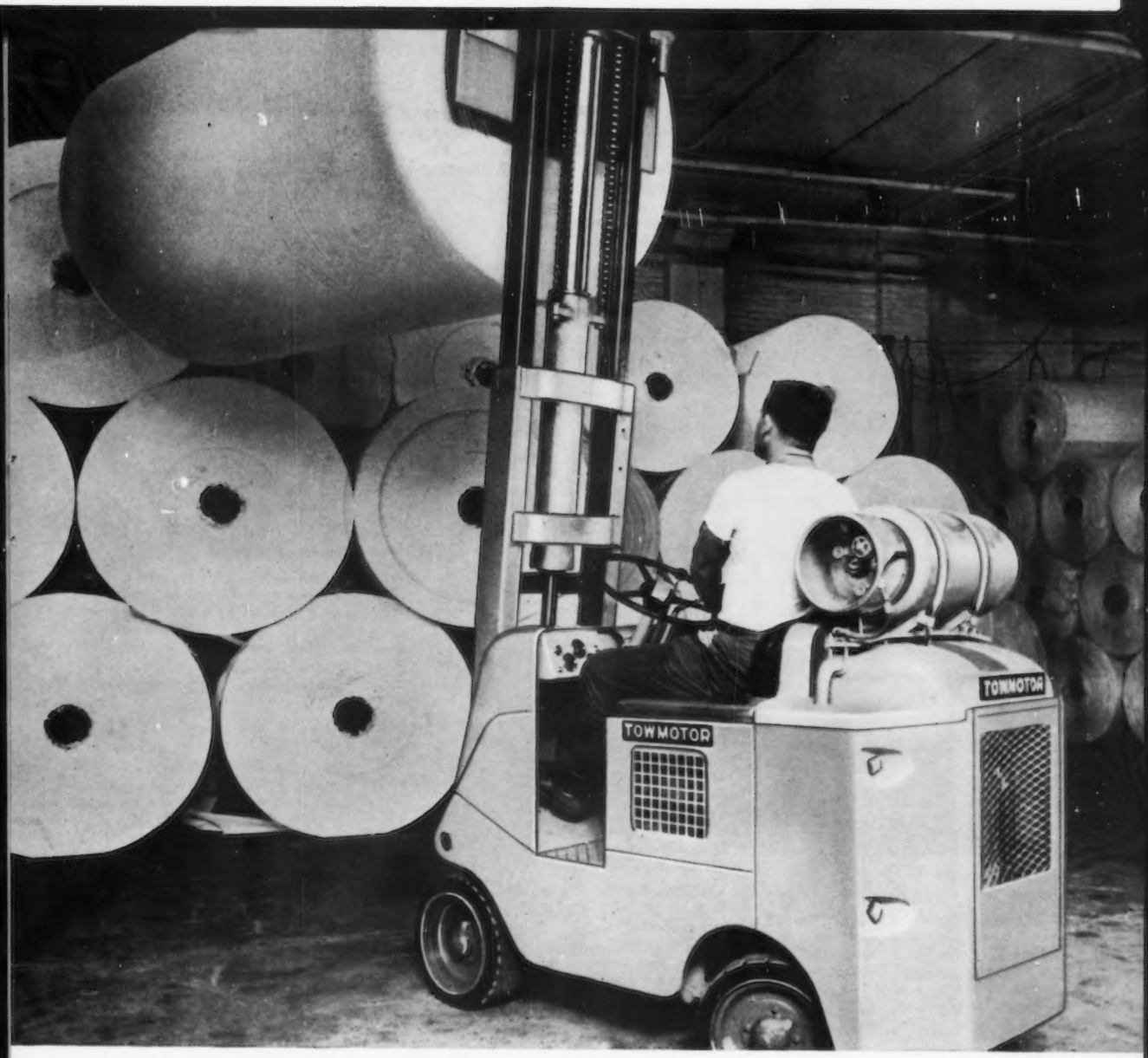
You can prove the many advantages of Celite to yourself in your own mill, quickly and easily. Call in your nearby J-M Celite Engineer for a free consultation and complete information. If you wish, he'll assist in making trial runs—at no cost or obligation. Write Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products

(Photovolt Reflection Meter courtesy of Testing Machines, Inc.)

Celite has many paper production advantages:
- Controls Pitch
- Increases Opacity
- Reduces Pigment Costs
- Speeds Board Production

JOHNS-MANVILLE JM PRODUCTS



Making fork-lift history!

Certified Job Studies continue to report new records of productivity and profit with Towmotor Fork Lift Trucks at work throughout industry. These reports by users show Towmotor handling great varieties of loads in factories, mills, yards, docks and warehouses. Unloading raw materials. Feeding production lines. Storing goods. Preventing platform tie-ups. Loading boxcars and trailers. Saving record amounts of time, space, effort and handling dollars in every industry . . . including *yours*.

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PJT NEW LITERATURE

Newsprint Data: 1959

This latest edition of the annual publication of the Newsprint Association of Canada starts with a world summary of current newsprint capacity and production in the free world, and comparison of North America with all other countries, excluding the communist bloc because of lack of information. Part I provides detailed information on production, consumption, exports and imports in the United States and Canada. Part II provides similar information for other countries. Part III is reference data by areas and countries. The report concludes with a list of new capacity projects throughout the world.

Signode Paslode Stapler

Points out important design features that assure improved stapling quality and speed. Cutway views and light pattern photos illustrate the three most significant stapling tool improvements. Bulletin. Paslode Co., 5860 Northwest Highway, Chicago 31, Ill.

Karbage Immersion Heat Exchangers

Nomograms and curves present design information and sample calculations illustrate the proper application of heat exchangers and steam jets under a wide range of operating conditions. Catalog Section S-6620. National Carbon Co., 535 5th Ave., New York 17, N. Y.

A Modern Approach to Cooling Water Treatment

Covers the Dianodic method of corrosion control and tells how it has revolutionized the treatment of open recirculating cooling water systems. Technical Data Sheet. Betz Laboratories, Inc., Gillingham & Worth Sts., Philadelphia 24, Pa.

Chempump Seal-less Pumps

Includes design and operational information on their complete line of seal-less pumps for leak-proof pumping. Also tells how to select the proper "canned" pump. Chempump Div., Fostorial Corp., P. O. Box 35-7, Huntingdon Valley, Pa.

Caterpillar SynchroTouch Transmission Control

Gives a step by step explanation of how this control operates. Also includes schematic drawings which illustrate the sequence of events involved in "shifting" by dialing the desired gear. Form 33613 (DW20) and Form 33614 (DW-21). Caterpillar Tractor Co., Peoria, Ill.

Catalog '60 Valves

Features a special 24-page valve selector and over 100 pages of valuable engineering data. Lunkenheimer Co., Cincinnati, Ohio.

Process Industries Equipment

Includes descriptions of equipment for the process industries as well as electrical equipment. Catalog Guide 25C-6177P. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Physical Properties 1960 Edition

Contains information on applications, physical properties, and shipping data on more than 400 synthetic organic chemicals. Carbide Chemicals Co., 30 East 42nd St., New York 17, N. Y.

Iron Fireman Automatic Firing Equipment

Covers the entire commercial-industrial line of oil, gas, dual-fuel burners for gas and oil, forced draft package units, boiler-burner units, coal stokers, factory wired combustion control panels and their SelecTemp steam heating system. Form 6260. Iron Fireman Mfg. Co., 3170 W. 106th St., Cleveland 11, Ohio.

Refracolor Gauges

Gives features and technical data on these high pressure boiler water gauges. The water level is shown as green while the steam area shows red. Data Sheet. Jerguson Gage & Valve Co., 80 Adams St., Burlington, Mass.

Subscription Free to Equipment Handbook

Offers free subscription for one year to their handy pocket-sized equipment manuals which act as a guide to executive planning. They include the newest products and inventions for both plant and office. Precision Equipment Co., 4411 Ravenswood Ave., Chicago 40, Ill.

Dillon Suspension Scale

Includes engineering information on their Model P scale. A colored card lists all pertinent dimensions and complete prices. Bulletin 58E. W. C. Dillon & Co. Inc., P. O. Box 3008, Van Nuys, Calif.

Cochrane Uni-Pac

Describes the sodium zeolite water softening process and gives information on selecting and sizing of equipment. Manual 5820. Cochrane Corp., 17th St. below Allegheny, Philadelphia 32, Pa.

Russian Patent Publication

The past 12 months have witnessed a tremendous endeavor on the part of Western governments, research associations, information centers and publishers to make available to English-speaking research workers the increasing spate of scientific and technical literature which is being published in the U.S.S.R. Both the British and American governments have set up clearing houses which publish guides to sources of Russian information, and sponsor cover-to-cover translations of all the important Russian technical journals.

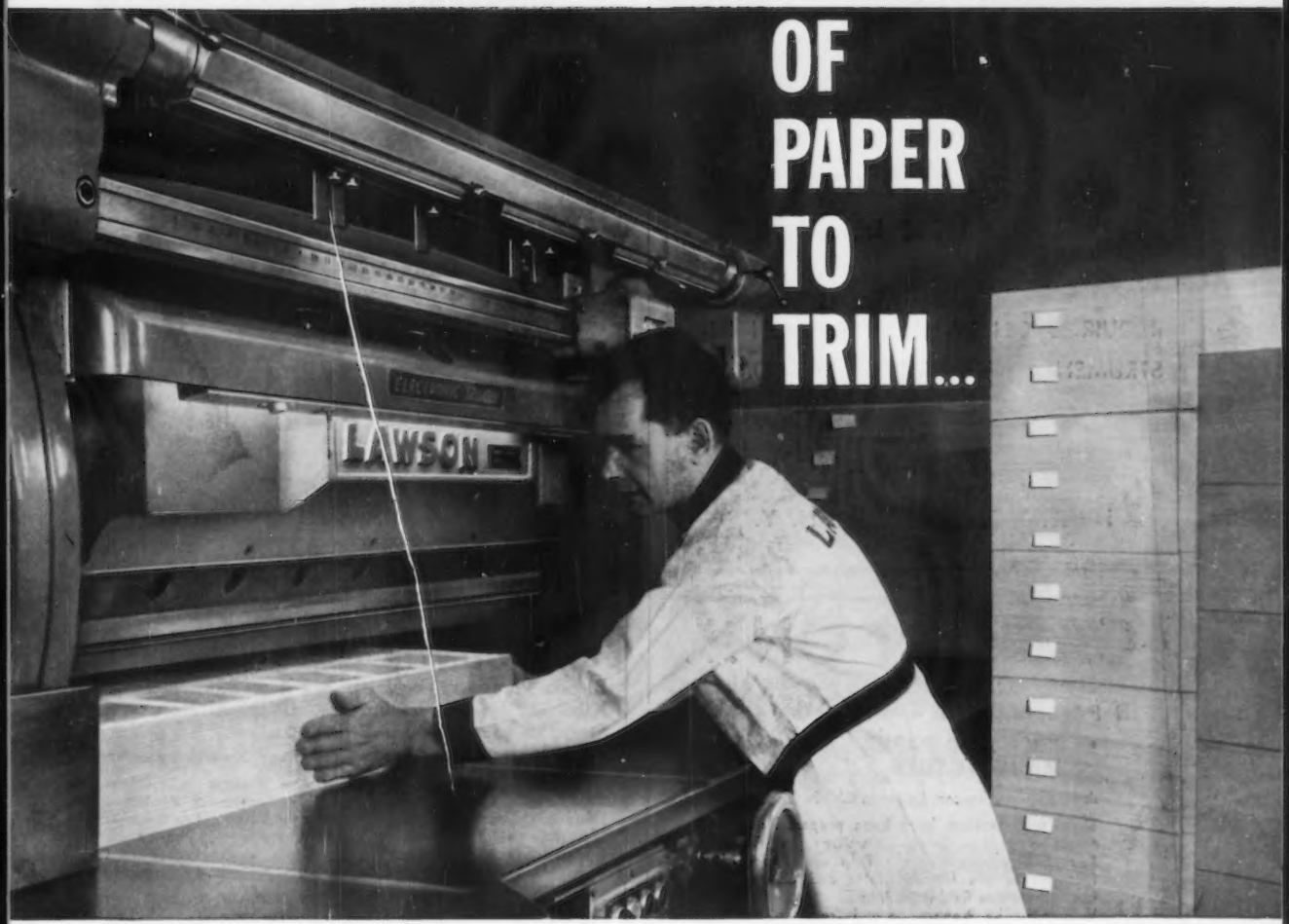
Russian Patents Gazette, published by Technical Information Co. (Chancery House, Chancery Lane, London, W.C.2.) has been accepted as the English-language medium for keeping abreast of newly-published Russian patents (Opisanie Izobretenii).

Concise abstracts are arranged under convenient subject headings which enable the user very rapidly to locate those items which interest him.

Copies of the original Russian patents, and low-cost translations into English are available from the publishers.

Russian Patents Gazette, a monthly publication, is available in three separate sections: Russian Patents Gazette (Comprehensive); General, Mechanical & Electrical Section only; and Chemistry & Chemical Engineering Section only.

MEN WITH MOUNTAINS OF PAPER TO TRIM...



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Up to 60% faster and 20% heavier than comparable machines. The new Lawson Pacemaker Hydraulic Clamp Trimmers cut through literally mountains of paper daily...with unmatched accuracy. Easy to operate and maintain.

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Adjustable Contour Clamp actually flexes to conform to irregularities in the contour of the pile... assures uniform clamping pressure across the lift. Knife cuts straight and true from top to bottom.

Rear Table Slot Closing Device prevents paper from snagging when rear loading or "swinging" the lift. Built-in air cushion system reduces operator fatigue ...means extra production...extra profits.

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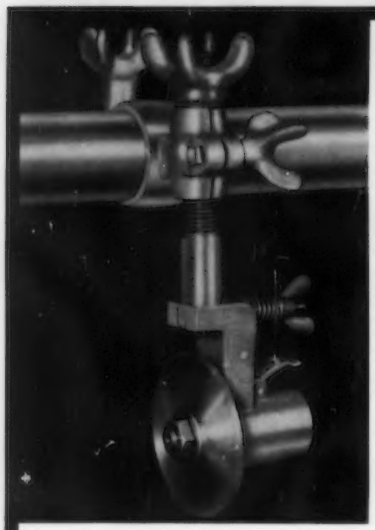

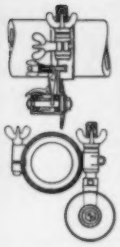

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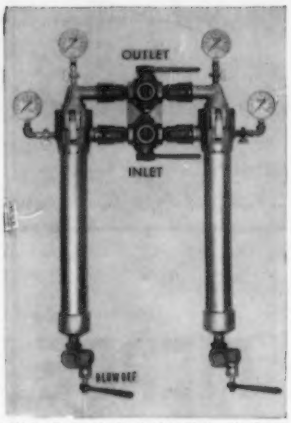

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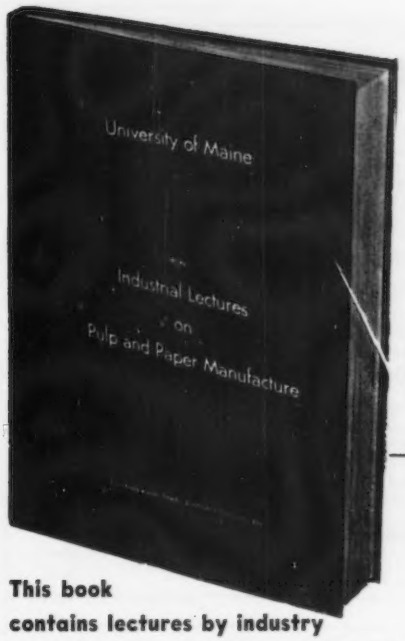

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38—46" face; Chrome plated
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3— 76" face w/gears & bearings
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2— 84" face
2— 84" face w/accessories

36" Dia.:

1— 42" face
2— 44" face
2— 46" face
22— 54" face; complete section
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1—124" x 30" Farrel w/crowning device
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1— 62" Cameron Type 6
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